THE WORLD'S GREATEST PC MAGAZINE

PCFormat

Tomb Raider Legend
Why it's cool to love Lara again

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25 weird moral & legal loopholes exposed

High def projectors
Still better than a big TV!

HASTA LA VISTA
Surprise! Microsoft's next OS is delayed yet again. Is it worth waiting for?

INTEL STRIKES BACK
Hands-on with the gamer's new chip of choice

+64 BRAND NEW REVIEWS
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Latest CrossFire vs SLI
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in your mag

THE WORLD'S GREATEST PC MAGAZINE

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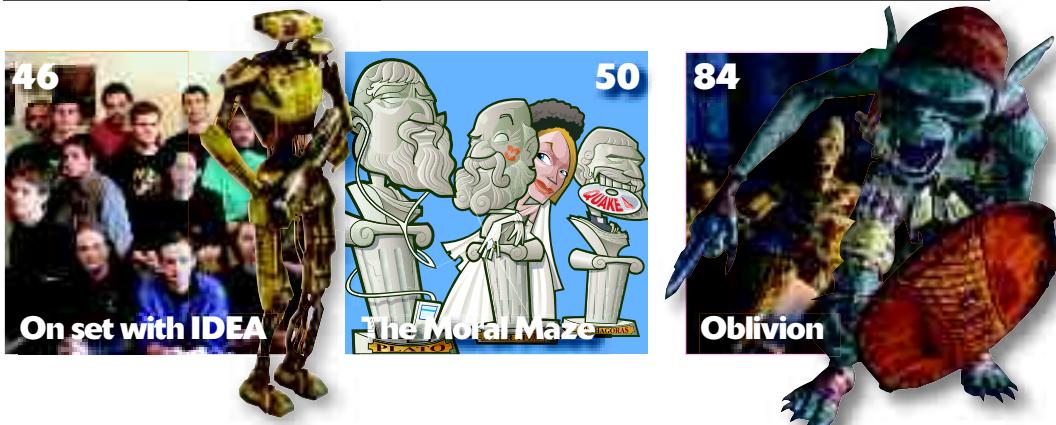
Intel Conroe

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on your disc

DO THIS
Go forth and create like the wind

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WORKSHOPS
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NETWORKING
≫ AirSnare ≫ Bitmeter 2 ≫ LanSpy ≫ LimeWire ≫ Peer Guardian ≫ Quick Messenger ≫ SensiveGuard ≫ TightVNC ≫ WiFi SiStr ≫ ZoneAlarm

LINUX
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≫ Basic4GL ≫ Crimson Editor ≫ Dev-C++ ≫ Nvu ≫ PHP Designer 2006 ≫ Python ≫ Source Edit ≫ Visual Prolog

UPGRADES
≫ Belarc Advisor ≫ Dead Pixel Locator ≫ Emsa DiskCheck ≫ RAM Idle LE ≫ RightMark Audio Analyzer ≫ SpeedFan

PHOTO
≫ CleanSkinFX ≫ Digital Camera Enhancer ≫ FastStone Image Viewer ≫ FastStone Photo Resizer ≫ IrfanView ≫ JAlbum ≫ PC Inspector Smart Recovery ≫ RawShooter Essentials 2006 ≫ The GIMP ≫ VisiPics

AUDIO
≫ Alive WMA MP3 Recorder* ≫ Audacity ≫ Babya Logic ≫ Free Hi-Q Recorder ≫ Free Mp3 Wma Converter

GRAPHICS
≫ Muvee autoProducer ≫ MilkShape 3D 1.7.7a

ENTERTAINMENT
≫ DivX ≫ MediaPortal ≫ Minilyrics ≫ nDVD ≫ OnlineTV ≫ PSP Video 9

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≫ AVS Disc Creator ≫ DesktopZoom ≫ KillProcess ≫ Notebook ≫ more…

autoProducer
Direct your own psychedelic music video with *Muvee autoProducer*
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On this month's DVD...

Tuned in
Record your favourite web radio stations with our funky guide **page 108**

Mend a render
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130 free apps
We've crammed masses of useful free programs on this month's coverdisc

More Freeman
The top 10 *Half-Life 2* mods for your delectation

Realsoft 3D
Make rendering models look like child's play with our step-by-step graphics guide **page 112**

Muvee
Learn how to create and edit films on your 3G phone with our great walkthrough, over on **page 100**

A4Desk
Design a simple Flash website in moments with this handy app **page 116**

Halfling heroes
Save little woodland folk, or brutally crush them under Sauron's iron rule

Perfect deity?
Black & White 2 works in mysterious ways, as our demo proves

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Full Spectrum Warrior: Ten Hammers

Tactically deployed straight to your coverdisc…

DVD ONLY? Games and apps marked with an * are also on the CD editions

A

PLAY THIS

A FSW: Ten Hammers
Command your troops to victory in this genre-blending, squad-based action RTS.

LMB	Action
RMB	Movement Cursor
TAB	Switch Teams
E	Precision Fire
C	Take Cover

B Act of War: High Treason
This expansion pack throws naval combat into the fray and introduces mercenary units.

LMB	Select
RMB	Action
Middle MB	Rotate Camera
MSWheel	Zoom in/out
CTRL + No.	Group Unit

C Black & White 2
Give that beastie of yours a swift backhand with the demo of Lionhead's strategy game.

LMB	Action
RMB	Hold to move
MSWheel	Zoom in/out
Middle MB	Pitch/Rotate Camera
L	Creature Leash

D Champ Manager 2006*
Don the now well-worn sheepskin once again for the latest edition of *Champo*.

LMB	Select
RMB	Secondary Menu

E Battle for Middle Earth 2
The sights of New Zealand from the comfort of home, with this violent tour of Middle Earth.

LMB	Select
RMB	Action
Middle MB	Rotate Camera
MSWheel	Zoom in/out
Z	Planning Mode

Act of War: HT B   **Black & White 2** C   **CM 2006** D

Lord of the Rings Battle for Middle Earth 2

Battle swathes of Tolkien's improbably named nasties in this epic RTS E
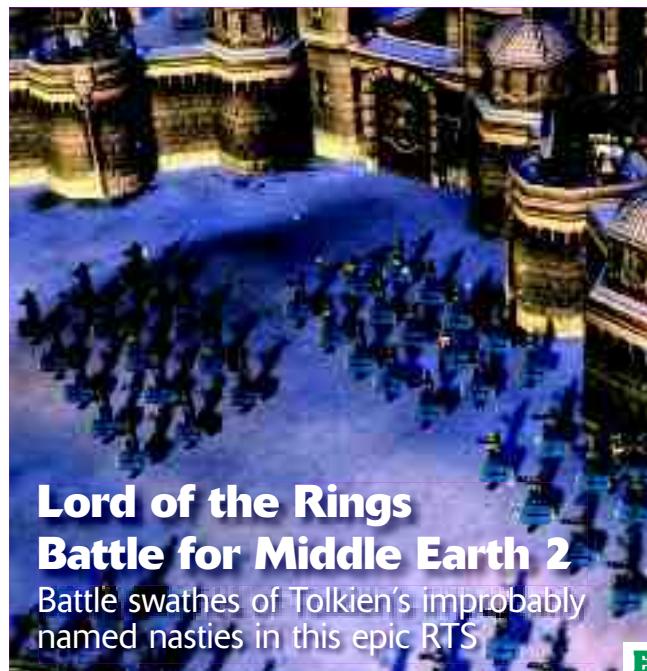
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Don't wait hours to download this month's best games demos. They're all here, right now.

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We want you to get the most from your free programs. *PCFormat* features more software guides than any other PC magazine in the world.

Technical support
We like to think our discs are always problem free, but if you do have any issues, contact the disc support team on 01225 822 743 or via email at: **support@futurenet.co.uk**.

Loads more games content

GAME DEMOS
» Ubersoldier » Conflict: Global Terror* » Full Spectrum Warrior: Ten Hammers* » Black & White 2 » Act of War: High Treason » Bloodrayne » Air Conflicts » LOTR: Battle for Middle-Earth 2 » WarPath

GAME VIDEOS
» Battlefield 2: Euroforces » Blazing Angels: Squadrons of WWII » Call of Cthulhu – Destiny's End » Tomb Raider: Legend » Shadowgrounds » SpellForce II: Shadow Wars » Oblivion » The Godfather » Ubersoldier » War on Terror

MAPS/MODS
» HL2: Minerva: Metastasis » The Battle Grounds 2 » Capture the Flag » Dystopia » HL2: Eclipse » Empires » Garry's Mod » GoldenEye » Source Forts » The Hidden

PATCHES
» AoE III v1.05 » Legion Arena » Onimusha 3: Demon Siege » Singles 2: Triple Trouble » Star Wars: Battlefront II » Star Wars: Empire at War » The Regiment » The Sims 2: Open for Business » Tycoon City: New York

GAME EXTRAS
» 50 shareware games » more…

For a full list of everything on the disc please refer to the disc's interface and packaging. Controls for the games are listed there too.

PCFormat
Welcome

We've been writing about the rise and rise of digital entertainment now since before Creative first pushed a brick sized DAP through our letter box and Napster was an evil little filesharing glint in young upstart Shawn Fanning's eye. Which is why we greeted the launch of LoveFilm.com's latest movie download service with sighs of relief, rather than the raucous cheers it is really due. At last, we have somewhere to legally download movies concurrent with their DVD release date – someone who'll do us the favour of taking our happily proffered cash for the services we expect and know are technically possible.

It's not perfect by any means. The ever-burning DRM issue means that you have to download two copies of a film to use a portable device, and the library is still not what we'd expect, but the floodgates are slowly rumbling open – I give it about a year until we have a decent, Napster-style subscription service running that will let us watch whatever we want, whenever we want for one reasonably low flat fee. Well, perhaps a bit more than a year then.

Enjoy the issue,

Adam Oxford, Editor

Alec Meer, Deputy Editor

Though determined that he'd never be happy again having discovered that new Mini Cheddars do not possess the "same great taste", being one of the first to play *Oblivion* (p84) helped alleviate the pain. This joy was replaced by the agony of making Vista get along with a widescreen monitor. The news that the OS had been delayed until 2007, the day after completing his preview feature (p38), was just salt in the wound.
Achievement of the month Maintaining in the face of all evidence to the contrary that it's *Quake IV*'s fault, not his, that he can't hit anyone.

Al Bickham, Technical Editor

With a fearsome crackle and a cloud of smoke that smelled of nothing less than burnt cabbage, Al rather spectacularly blew up the PSU in his PC after an extensive fiddle. The brush with death wasn't his main concern though – it was that his *Oblivion* saves might've been wiped out in the power surge. Luckily, they escaped unscathed.
Achievement of the month Lumping the king round the noggin with a two-handed warhammer. Heh.

James Carey, Games Editor

Jim's reputation as an *Operation Flashpoint* fanboy is legendary around the Future offices, and an exclusive first play of *Armed Assault* and sneak peak at the true *Flashpoint* sequel at Bohemia had our man giddy as a schoolboy this month (p46). Lara's shock not-too-shabby comeback came as a pleasant surprise, too. All these good games and E3's still a month away…
Achievement of the month Attaining immortality by getting scanned into the top secret *Game 2*.

Jeremy Laird, Technology Writer

The joys of cattle-class international air travel. Cloak and dagger benchmarking at secret hideaways. And just four points dropped on serve in three sets of high quality lawn tennis. All this and so very much more can be yours, but only if you can fill the shoes of *PCF*'s numero uno, self-publicising superstar scribe. When he's not bigging himself up to a nauseating degree, Jeremy can be found sorting the technological wheat from the chaff in Geared Up, over on page 20.
Achievement of the month Really ripping those second serves… oh, and getting his mitts on Intel's fantastic new Conroe chip (p56).

NEXT MONTH

£1500
CHALLENGE

Can you buy a high performance system for a reasonable price?

PCFormat

See page 145 for more details

ON SALE 18-05-2006

AROUND THE WORLD WITH PCFORMAT

PCFormat's outrageous popularity isn't confined to the UK – the magazine is licensed to the following countries in Europe, Africa and Asia.

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PORTUGAL
ITALY
AUSTRALIA
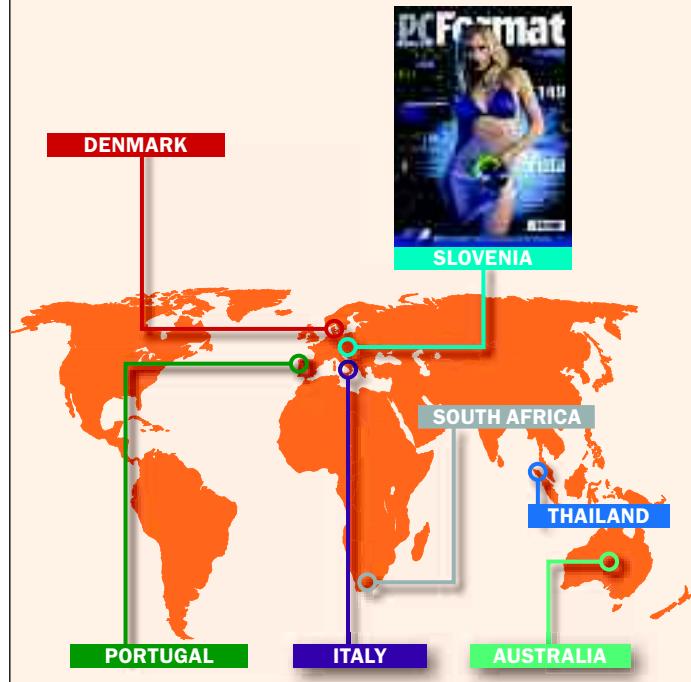
Frontend

THE BEST OF THE MONTH IN COMPUTING

Boarded Up
The main interaction with your PC is through the keyboard and mouse setup. Wireless, media centric kits are all the rage at the moment but we've covered all angles in our mammoth keyboard and mouse combo Supertest on p124.
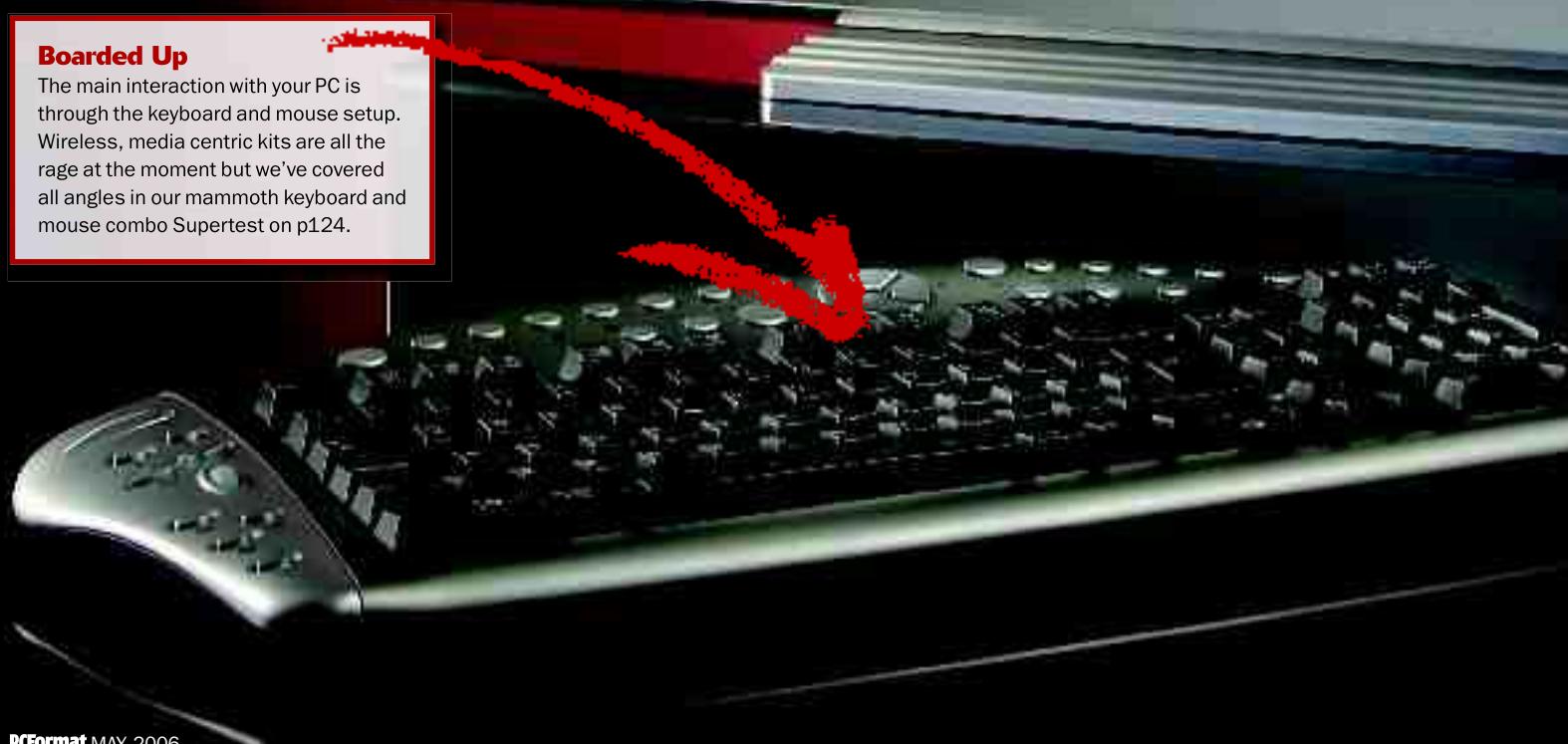
Getting PhysX-ical

The biggest shake-up in games technology since the arrival of the 3D accelerator is finally upon us

Dust the cobwebs and dead mice off that old PCI slot – it's about to make itself useful again. Finally, the much-hyped, long awaited Ageia 128MB PhysX accelerator board is being shipped in the US through Falcon Northwest, Dell and its recently acquired brethren, Alienware.

The top of the range PCI-based 256MB version will be available on its own on these shores some time in May, exclusively through PCB maestro Asus. Details are a bit sketchy on price at the moment, but with the American cards costing around $300 we're hoping to see some coming in under the £200 mark.

Ageia has spent much of the last few years actively seeking partners not only to distribute the boards, but also enlisting creators of game engines and middleware as well as many top publishers and developers. "We've been using the AGEIA PhysX SDK with the *Unreal Engine 3* for the past year and it has added some awesome effects," says Tim Sweeney, founder and lead programmer of Epic Games. With over 100 games already in production and some huge titles like *Ghost Recon Advanced Warfighter* supporting the PhysX accelerator straight out of the box, it looks like Ageia has done its homework and could well hit its launch running.

> **"It'll change the way games look, feel and play"**

CRY HAVOK
Twitching at the sound of a new buzzword being bandied around the industry, NVIDIA has made a move to bag itself a slice of the physics action. Announcing a partnership with software

Goblin Skirmish

Alec Meer
BEEN TO HELL AND BACK

A game that can teach the art of story-telling

Office opinion on Oblivion (p84) may be divided between raving obsession (everyone with half a brain cell) and 'it's a bit clunky' (Jeremy) to 'prefer World of Warcraft' (Adam), but it's got people talking in a way no game has since Half-Life 2.

Everyone has a new anecdote every morning, and whether it's AI beating people who'd wronged him to death with a hammer as they slept, Mike trying to goad someone so he can commit non-cold-blooded murder and still join the assassin's guild, or me botching a heist and legging it with angry guards in pursuit, you'd never guess that there are no real people involved. Sure, it occasionally comes dangerously close to setting new lows for voice-acting, and NPC conversations are as stilted as a school nativity play, but it's how you react that makes the difference, whether it's taking a shine to a hot elf lady or getting your back up in response to a sarky nobleman. What's incredible is that it has us talking – there's no guns, no plot twists, no celebrity endorsement (Patrick Stewart's five minutes aside). It's a deep, intelligent game that's found its own well earned success.

physics developer Havok (the tech-behind the ragdoll bodies in pretty much every recent big-name game, plus some smaller ones too) to create Havok FX-based SLI Physics, it is making a software kit that utilises any spare capacity on the GPU to power enhanced visual physics effects.

The idea sounds brilliant: "Moving physics processing to the GPU is a natural progression enabled by the high programmability in today's GPUs," claims David Kirk, chief scientist at NVIDIA. Being able to get extra goodies through an already existing hardware solution you'd think should cut Ageia's hardware out of the equation. Unfortunately for NVIDIA the SLI Physics system will likely result in a huge performance hit.

Run any game on the large, high-res monitor you're likely to have with a high end SLI setup, and even two 7900GTXs are going to have to work pretty hard. As such it's currently highly unlikely that there'll be enough spare juice left to hand over to the Havok FX software without impacting on frame rates.

Ageia, meanwhile, has been working on getting its SDK competitively licensed out to as many developers as possible. While the Havok engine was reportedly costing around $250K per title range at charge a single shining penny so long as the devs agree to make the game compatible with its hardware as well as the software. Currently each PC

"Ageia has done its homework and may well hit its launch running"

last year's E3, the PhysX SDK is being offered for only $50K. BUT, and, as you may have noticed, that is a big but, the company won't developer that has signed up with the SDK has signed up to the hardware agreement as well. On top of Ageia's bargain basement developer prices, Havok could be pricing itself out of the equation by opting not to bundle the Havok FX software with its standard development kits – it plans to charge an extra fee for the FX licence on top.

NVIDIA already has around six million or so SLI-ready cards already out there in the wild, hence its existing userbase can quickly be converted to SLI Physics. It all seems like artfully-rendered smoke and mirrors, however, as its enhanced effects are mainly aesthetic, whereas Ageia's PhysX board promises to create an actual change to the way games look, feel and are played. Will this be a red letter year in the world of total immersion gaming? You need only wait until next issue to find out, when we'll have our exclusive review of the PhysX accelerator card. **PCF**

Pipe dream
Scaffolding collapse, pipes fall and – almost uniquely – there's absolutely no scripting involved. Best start running fast in the other direction then…

Cell time
This shot of upcoming title *Cellfactor*, from Immersion Games and Artificial Studios, shows what can be done with PhysX. A real-time gameplay video is available from **physx. ageia.com/footage.html**, and has to be seen to be believed.

Total Havok
Why would devs choose PhysX over the proven Havok? It used to be known as the Meqon engine – as is in *Duke Nukem Forever* – until Ageia bought it.

Ageia of empires
With the memory bandwidth of the PhysX processor (2Tb/s according to Ageia) outstripping even the fastest multicore CPUs, it can make the environment affect the player and throw objects around like confetti.

Bus	32-bit PCI
Memory	256MB GDDR3
Memory Bandwidth	12GB/sec
Memory Speed	366MHz
Peak Instruction Bandwidth	20 billion instructions/sec
Sphere-Sphere Collisions/sec	530 million maximum
Convex-Convex Collisions/sec	533,000 maximum
Requires	a DX9 supporting 3D card with Shader Model 2.0 or higher

UBI SAYS
"Users of the AGEIA PhysX processor will experience incredible realism and interactivity." Mathieu Girard, producer at Ubisoft, about Advanced Warfighter.

Picture © UIP

KONG IS KING OF DOWNLOADS

Now you can watch all the major channels online, and download Peter Jackson's King Kong to keep

Poke around in what is perhaps an almost forgotten corner of the BBC website, and you'll come across the corporation's research and design department. This team has been feverishly working, in association with keen rivals ITV, on the technology for streaming television channels across the internet to UK homes. As part of this research, a public trial of a multicasting service, including live streams of BBC and ITV channels, is currently underway at the BBC's website for users of a select number of ISPs.

Multicasting, as a technology, has been around for several years, but so far without the content to justify a countrywide rollout. Unlike unicasting – where each user connects to the content provider and requests data – multicasting allows the provider to simply broadcast a stream, which is then picked up by the viewers. "The technology for unicasting is there already, but if you're the BBC and you've got tens of millions of people visiting your site, you're not really being a good citizen of the internet if you do that," explained Tom Loosemore, the BBC's head of strategic innovation. So is multicasting the definitive answer? "We're exploring several avenues at the moment, but multicasting is certainly the most technologically pure." Head on over **www.bbc.co.uk/ multicast** to see if you are capable of receiving television over the internet right now.

If you're not using one of the select few ISPs, take heart that online entertainment has taken one more giant step forward thanks to *PCF*'s new favourite film rental site, **LoveFilm.com**. As of late March, it's been hosting the UK's first proper blockbuster download site with films from Universal Studios – including *King Kong* – available to buy online. It's also started adding furiously to its online rental library with choices from art house classics like *Dog Day Afternoon* through Hitchcock thrillers to the entire *Batman* collection available to download at a price of £2.99 for a week's licence. The future is actually here…

His holiness the iPope

Emperor Palpatine lookalike gets down wid da kidz
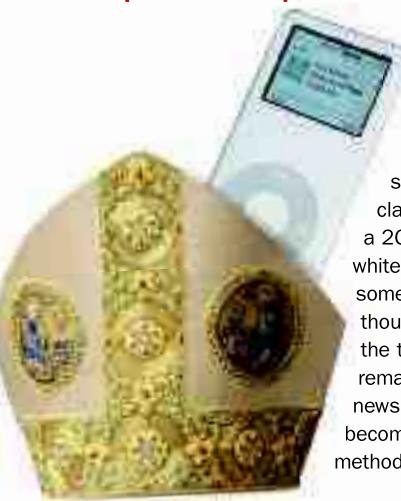
Anyone who holds that the Catholic Church is horribly out of touch with modern sensibilities will no doubt stand corrected upon hearing that Pope Benedict XVI is the owner of an iPod Nano. He was presented with the candy-like MP3 player by staff of the Vatican radio service, who may have lost all claim to eventual sainthood by only mustering funds for a 2Gb model – though it is, of course, an unblemished white version. They also helpfully pre-loaded it with some classical music and suitably pious radio shows, though reports that he's actually nodding his head to the turgid ladrock of the ubiquitous Kaiser Chiefs remain entirely fictional. We're hanging on keenly for news on the first Papal podcast, which will no doubt become available as soon as Apple figures out a method to accept *iTunes* donations in the form of prayer.

FACT!

A survey found that three out of four Canadian P2P users claim to have gone on to buy albums or individual tracks having already illegally downloading them online.

We're jammin'

Spare a thought for the inhabitants of Barrow Gurney, in the heart of sleepy Wiltshire. The once-peaceful hamlet has become a smog-choked thoroughfare, thanks to drivers using sat-nav. According to villagers, 10,000 Bristol airport-bound cars a day are routed through the area by their GPS systems to sidestep congestion on the A38.

Geoff Coombs, Parish Council Chairman of Barrow Gurney, told BBC reporters, "There should be special dispensation not to route high volumes of traffic through small villages close to airports".

PCFtest
SOCIAL BOOKMARKING

With interesting content sprouting on the internet every day, which social bookmarking site should you use to keep abreast of the action?

What is it?	Pros	Cons	Score
Fazed www.fazed.org Recent links to entertaining sites submitted by users and selected by moderators. Boasts an active community and comment pages.	Fazed is updated regularly and has a range of content. The community comments and suggests links and the tidy tag system makes it all clear.	While it's always marked, there is a certain amount of adult content; perhaps not one for kids. There's also no guarantee submitted links will appear.	3/5
Ma.gnolia ma.gnolia.com Lets you create a list of bookmarks and search areas of interest. Bookmarks are made available to others by default.	Having your own favourites means you can access them from anywhere. The ratings are good for filtering out the guff. Soothing interface, too.	There's only a limited selection of public groups on offer and many have only one or two members. The community needs serious development.	4/5
Stumbleupon.com www.stumbleupon.com Choose your tag and then just click the Stumble button to have a random site thrusted into your waiting arms.	The design is simplicity itself, and if you don't like what you see, the next site is just a click away. Users often have link-stuffed blogs.	Very few. Stumbleupon does all but require the toolbar and, while this isn't always a problem, it can cause *IE* congestion.	5/5
del.icio.us del.icio.us Similar to ma.gnolia.com, this site collects your list of favourite sites, ranked by the number of people who've also saved them.	Bookmarks show not only who submitted them, but also how many other people have them saved, making it easy to gauge popularity.	It's ugly. Also, you are more likely to remember the addresses of your entire favourites list than where the dots go in its ridiculous URL.	2/5
Yahoo My Web 2.0 myweb2.search.yahoo.com Yahoo's attempt at social bookmarking is currently in the beta phase, but already has many features found on other sites.	A clean but feature rich interface and reasonably good integration with Yahoo's existing search engine make this feel professional.	At the time of writing, you can't search for other tags, only rifle through your contacts' and your own. Some popular tags are riddled with adult links.	3/5

CONCLUSION Many of these sites offer similar feature sets, so to an extent you should simply choose whichever interface you prefer. We were particularly taken with the Stumbleupon toolbar, but obviously for those who want to carry their bookmarks from PC to PC, perhaps the eyeball massaging prettiness of Ma.gnolia.com may be better.

StarForce. Not the name of an enemy fleet in *GalCiv 2*.

"The rattled admin linked to a pirated copy of the game"

Intergalactic star farce

Game pirates turn out to be like annoying children: ignore them and apparently they do go away.

Copyright protection outfit **StarForce** has found itself once again the target of negative attention following a misguided post on its own forums linking to pirated games.

It started with a user post on the company's own forum – **www.star-force.com/forum** – pointing out that Stardock's *Galactic Civilizations II: The Dread Lords* was not only topping the PC games sales charts at EB and Walmart, but also ranked number two in EB's all-formats chart. Significantly, these figures had been achieved despite the fact that Stardock, with the support of its US publisher Auran, chose not to include any copy protection on the *GalCiv 2* discs.

COPY WRONG

This doesn't mean that Stardock want people to copy its game, though; Paul Olsen of Auran explained that copy protection is instead applied by encouraging people to buy the real thing. "With the full support of the developers, Auran is publishing this game with no copy protection, instead relying on a quality product that provides registered users with frequent updates and additional features." Purchasers of *Dread Lords* – a game

which *PCFormat* was perhaps a little too hard on last issue – register their copies on the site in return for regular extras from Stardock, a system not unlike the old shareware model. At $40, the game is around half the price of most US releases, which Stardock argues is also an incentive for owners of pirated copies to go legit.

But StarForce baiting is a regular hobby on those forums, and a rattled admin's response was to point out that Stardock was losing sales to pirates – by linking to a BitTorrent file of the game. This was naturally seen by some as bad grapes and encouraging people to actively download it and thus prove the argument for copy protection. The link was later removed and an apology issued to the *GalCiv* developers. Star-

force's Dennis Zhidkov told *PCF* that the company deeply regretted the post, but hoped that "our reputation is built by our efficient technology over the years, and not by forum posts."

Auran is at pains to stress that while the *Galactic Civilizations II* experiment has been a success, there is a place for copy protection software. Olsen explained that "there is a big place for copy protection as most developers choose not to implement something along the lines of what Stardock have. We commend Stardock for the efforts and for rewarding the consumer, not (as some would say) punishing them with hard to operate copy protection." Quality games, low prices? If only more devs were brave enough to follow suit.
www.galciv2.com

HEARD THIS? *"I think the most effective way of increasing sales is probably to make games people want to buy. But I'm an engineer, not a marketer so what do I know?"* Stardock's Frogboy responds to the links to pirated copies of his game on the StarForce site.

WHO IS...
Flying Spaghetti Monster

I know this one. He's Adobe's CEO!

The FSM, as he's affectionately known, is a fictional deity created by one Bobby Henderson as a response to schools in Kanvas teaching intelligent design (a the last gasp of the unevolved to kick Darwinism off US syllabuses). Henderson petitioned Kansas schools to also tell pupils about the FSM and His Noodly Appendage.

Presumably the internet soon picked him up...

Yep, it's that perfect fusion between cartoonish tomfoolery and fierce opinion that makes the internet so wonderful. Between them, bloggers pledged a still unclaimed $1m prize to anyone who could provide conclusive evidence that Jesus was not the progeny of the Flying Spaghetti Monster.

Oh, God.

Calm down, they're only joking. Though we do hope that Henderson makes good on his promise to spend his $80,000 book advance on building a pirate ship he'll sail around, spreading Pastafarianism.

Picture © www.venganza.org

Pay-per-view Quake?

billg pwns j00 in front of a packed crowd

"Well, It's a deathmatch of two halves..."

Has Microsoft patented gaming as a spectator sport? Filing its 5,000th patent, MS is closing in on its target of 3,000 applications per year. Patent no. 6,999,083 provides for certain technologies that allow people to join in online games and spectate as though it were a televised sporting event.

The patent, rather cleverly, also covers the web portals that might provide information and access to these spectator sites. Commenting on Microsoft's website Brad Smith, senior vice president, said "Through patents, we are able to license our technologies widely to others in the industry."

By picking up intellectual property rights MS is hoping that it can make the research fees back, and then some, by entering into licensing agreements with companies like Sony Ericsson, Motorola, and Palm to produce the final technology. There is also speculation that it could be part of an attempt to soak up as much intellectual property as it can in a bid to bring pressure to bear against Linux.

The technology referred to in the patent relates to specifically designed content for Xbox Live, some of which has already been implemented before the patent was finalised. The idea is to give the spectators access to highlights, instant replays and individually controlled views of the action. In short, everything you'd find with a digitally broadcast sporting event.

Spectator modes have been in operation in online games for years now, but with the rising trend for professional gaming Microsoft is gambling on the prospect of the first pro-gamer celebrities drawing people in to watch them play. It will be interesting to see how many users tune in to watch someone they don't know fragging someone else they don't know in the meantime.
www.microsoft.com

> **"Spectators will be given access to highlights and replays"**

Google undressed in public

As corporate gaffes go, this is one of the more amusing ones we've seen. During Google's Analyst Day, the company provided a public link to the Powerpoint presentation supposedly to be shown at the event. Unfortunately for the search giant, some of the slides contained information intended neither for the public nor for event visitors.

Eagle-eyed blogger Greg Linden was first to post the news that Google had revealed both revenue projections and its proposed GDrive service (previously rumour fodder), which is intended as an infinite storage medium, containing all of a user's files to be accessible from any device. In light of this little mishap, we wonder if the public might not be so keen to entrust *all* their data to Google.

Win! London Dungeon tickets

Dungeons and Dragons, see? The most serendipitous *PCF* competition ever.

To celebrate the success of Dungeons & Dragons Online: Stormreach, Atari is offering one lucky PCF reader a family ticket for the London Dungeon.

We can't guarantee you'll get to slay many dragons, and shouting 'lightning bolt!' at the ushers may indeed get your ticket revoked, but we don't think you'll be in any mood for games after trawling through two thousand years of London's most gruesome moments, from infamous serial killer Jack the Ripper to the Great Plague.

And when all that horrific realism gets too much, you can always return home to the bustling frontier city of Stormreach, the first chapter in D&D's online world, which garnered itself a tasty 80% in last month's issue of PCFormat.

For a chance to win the two-adult, two-child ticket pedal over to www.pcformat.co.uk/competition and answer the following question:

Which of these races does not feature in the D&D universe?

a) Dwarf
b) Elf
d) Klingon

Terms and conditions are on the website.

Paint the world with nanotech

Shield yourself from mobile morons

At last! No more aggravating ringtones in cinemas – or even your house, if you so choose. A company in Rochester, NY has patented a technology that allows you to selectively turn off and on the reception of radio signals, such as those used by wi-fi or mobile phones, within a confined area.

Using a spray-on solution a room can be coated in this nano paint which could block incoming or outgoing communications. The company, NaturalNano, primarily focuses on discovering and refining naturally occurring nanomaterials. It has discovered that if you fill natural halloysite nanotubes with particles of copper they can suspend them in substances like paint, which can then be applied to buildings.

Since jamming radio signals is against the law, this passive solution should be a cost effective and simple way for businesses such as theatres or cinemas to provide an atmosphere free from the constant beeping and chirruping of mobiles. The added

bonus of being able to selectively turn off and on access to radio signals means calls could be received before and during the intermission, but blocked throughout the performance.

The Wireless Commission are complaining about the technology, citing the theoretical case of a brain surgeon that is urgently required to perform surgery but can't receive the message. Realistically though, it is probably justifiably concerned, and there is always the possibility of free wi-fi initiatives being utterly hamstrung by this intelligent paint.

Let's hope it comes in more colours than just battleship grey.

NEWS IN BRIEF

French Revolution
The controversial flat fee for file-sharing (see last issue) has been removed from the DADVSI copyright bill in France. After a lengthy debate (read: fight) with the music and film industry the French government decided the download tax couldn't cover the amount of illegal downloads each year. Calls for €300,000 fines have been replaced by civil fines of €38 for each downloaded file, rising to €150 for uploading individual files.

FMV ads dumped
TV adverts for Activision's *Call of Duty 2* and *CoD2: Big Red One* have been banned from broadcast after the Advertising Standards Authority upheld complaints from three viewers that the scenes depicted in the ad were misleading. The worrying precedent for publishers set by this ruling will mean that pre-rendered footage not included in the game can no longer be shown in adverts.

XP won't melt Macs
After it was proved possible to boot an Intel-based Mac with Windows XP rumours circulated amongst the Apple community that such efforts would make a Mac set fire

to itself. The idea apparently first came from MacRumours, saying that XP wouldn't install a fan driver and the machine would melt into a little puddle of tech. Not true, m'lud, the fans carry on regardless.

Funny or phishing?
A spoof website set up to resemble Australian Premier John Howard's own site was shut down after the PM's office claimed that it was primarily set up for phishing. Richard Neville, an Australian satirist, set up his site with a seemingly heartfelt apology from the PM over the terrible state of Iraq.

60%
STAT!
The percentage of wireless networks left vulnerable to 'security attacks,' according to a survey performed by US company PandaLabs. It's a shame piggybacking is illegal, really.

Shoreditch, land of the free

Nathan Barleys soon to get two gigabit broadband

The birthplace of **Damien** Hirst made the *PCF* news pages back in February for its forthcoming IPTV trials, which, amongst other innovations, enabled Shoreditch's residents to monitor the area's 500 CCTV cameras over their broadband connections.

The famously deprived town is due to become even more high-tech, as plans to give 20,000 homes access to a fibre-optic network with internet speeds of up to two gigabits a second have been announced. Crivens – and we thought last month's announcement of NTL's 100Mb trials was breathtaking stuff. Sadly, it's not quite as good as it sounds – the standard broadband connections will be between 1 and 24Mbs, with that tasty 2000Mbs being described as a "shared connection" for those households without PCs, but rather using a TV set-top box to access nearly-real-time PC programs (including *Microsoft Office*) that are actually running on remote computers. Almost like an online operating system, in fact – they access everything through the web, with nothing actually stored or run locally. It'll also mean wonders for online TV and video-on-demand: users will also have access to every channel from IPTV specialist Homechoice.

The folk behind the government-endorsed (to the tune of £12 million) trial reckon Shoreditchers will be able to download all 32,640 pages of the *Encyclopaedia Britannica* in around seven seconds, though figures on how long it'd take to snag a high-def episode of *Lost* mere hours after it had aired on

Self perpetuating media nodes rejoice, 2Gb internet is coming…

American telly over BitTorrent were not available at the time of writing. Those lucky enough to receive the connections will also be blessed with wireless keyboards and set-top boxes so they can take advantage of the multifarious IPTV and other entertainment services on offer, including ASBO CCTV (see *PCF185*).

It's almost enough to make us want to move to Shoreditch and set up some painfully vacuous new media firm that specialises in websites about haircuts for goats, but not quite. What the announcement does do, however, is have us ruing once more that BT decided not to switch from copper to fibre optic cabling all those years ago – had they done so, perhaps we'd all be sitting pretty on hundreds-of-megabits connections. Free trials of the Digital Bridge programme begin in a few months, with a full, subscription-based roll-out to another 40,000 homes in the area expected later in the year. See www.digitalbridge.org.uk for more.

Jeremy Laird
RETAIL REMORSE

Puts all his eggs in one monitor-shaped basket

Consider the lot of the technology hack. Glamourous trips to exotic foreign climes, your hobby made into a job and shed loads of kit to fiddle with. All combined with wages that a starving camel in a third world nation would consider just a little bit insulting. But unlike, for instance, motoring scribblers who have no hope of purchasing most of the fancy four-wheel contraptions they review, the PC industry's wonderful mass-market economics provide a life line to technology writers. If there's something seriously sexy that lands on your desk, you've a fighting chance of owning one yourself. And so it came to pass with Dell's massive new 3007WFP monitor. I simply had to have one. Sure, granny had to be shipped off to the glue factory to cover the last £50 or so. And I'll be sucking on dry cardboard for sustenance for the next six months. But never mind all that, the prize is mine: a ludicrous 30-inch screen diagonal. An insane 2,560x1,600 (count them, you poor 1,280x1,024-suffering fools!) pixel array. But please don't mention the slightly uneven backlighting. I'll start crying again if you do.

Gearedup
THE HARDWARE ON OUR MOST WANTED LIST

Daring duo
⬆ Samsung Q1
Price £700 **Available** TBA **Web** www.samsung.co.uk

OK, Microsoft's hyped-up, viral-marketed Origami effort can't quite trump the feeble Segway/IT two wheeled buggy in the high-concept-turned-damp-squib department. But the basic concept behind this ultraportable computer looks dangerously close to being little more than a slightly smaller, less powerful tablet PC. And we all know what a smash hit tablets have been. Nevertheless, both Intel (in the form of its UMPC hardware platform) and Microsoft are pushing this new form factor hard. So we at *PCF* will do our bit by keeping an open mind, for now.

And you never know, it might be one of those devices that suddenly makes sense once you've tried it. For the record, Samsung's Origami device, the Q1, sports a 7-inch touch screen with a decent native resolution of 800x480, and is powered by an ultra-low voltage 900MHz Celeron M. Oh, and like other Origami devices, it runs Windows XP Tablet edition with a few extra interface bells and whistles. **Portable power**

Tablet 'tweener
Bigger than a PMC. Smaller than a Tablet. The Q1 is 22cm wide and 13.9cm deep and tips the scales at 779g. Is it a glorified media player or not-quite pocket-sized productivity device? You decide.

Finger fodder
Along with the spruced up graphical interface, the Q1 sports a four-position definable button, an eight-way joystick as well as Enter and Menu buttons.

Take control
Although the Q1 runs Windows XP Tablet Edition, Microsoft has added a new Touch Pack which delivers a range of interface features designed to make stylus or fingertip control a bit whizzier.

Portable power
Yup, it really is a fully fledged PC. Storage is provided by a 40GB hard drive, system memory totals 512MB of DDR2 and graphics are provided by the GMA900 chip as part of Intel's 915GMS chipset.

Graphics grunt
➡ AOpen i975Xa-YDG
Price £125 **Available** Now **Web** www.aopen.com

Oh, Core Duo. Deliverer of massive multi-threaded performance. User of so little power. Why do you tempt desktop users so with your mobile computing goodness? Ahem… last month we saw the first Core Duo-supporting desktop mobo. This month, AOpen brings us perhaps the ultimate low-power computing platform, the i975Xa-YDG. It saddles up a Yonah-compatible CPU socket with Intel's finest 975 chipset and two (count 'em!) PCI Express 16-lane graphics ports – yup, this puppy fully supports ATI's twin-GPU Crossfire graphics solution. So that's two pokey but parsimonious CPU cores, two powerful GPUs and a whole lot of enthusiast fun. **Core values**

Micro media
⬇ Sapphire Radeon X1600 Pro HDMI
Price £130 **Available** Now **Web** www.sapphiretech.com

HDCP is the man. And as you read these very words an army of pustule-ridden script kiddies are boning up to stick it to him. Quite how long that next-gen DRM technology for high definition video discs will stand up to the onslaught of hackers, is anyone's guess. But one fact is clear. If you want to watch HD-DVD or Blu-ray content in full 1080p glory on your PC while staying on the right side of the law, an HDCP compliant 3D card is a must. And of course, HDCP is a requirement of any device with an HDMI interface, such as this Sapphire graphics card. Add in the half-height form factor and the reasonable performance offered by ATI's Radeon X1600 Pro 3D chipset, and you have a pretty compelling prospect for a future-proof media centre video card. **Plug and play**

High-end Half-Life
⬆ Alienware Aurora Quad SLI
Price £3,000+ **Available** Summer **Web** www.alienware.co.uk

If absolute power corrupts absolutely, then prepare to be overwhelmed by an Orwellian urge to purge and oppress. If you can afford the palpitation-promoting price tag of this Alienware über-rig, that is. Granted, Intel's Conroe CPU might be a killer around the corner. But for now Aurora's Athlon 64 X2 FX-60 remains the most powerful gaming processor, bar none. And yet, the real novelty here is the appearance of NVIDIA's Quad SLI tech outside of a Dell system *[Aren't AW part of Dell yet? – Ed]*. While the specs of the four GeForce 7900 GPUs aren't known, we suspect the 96 pixel pipe tune they will sing will be enough to obliterate everything else. **Pipe dream**
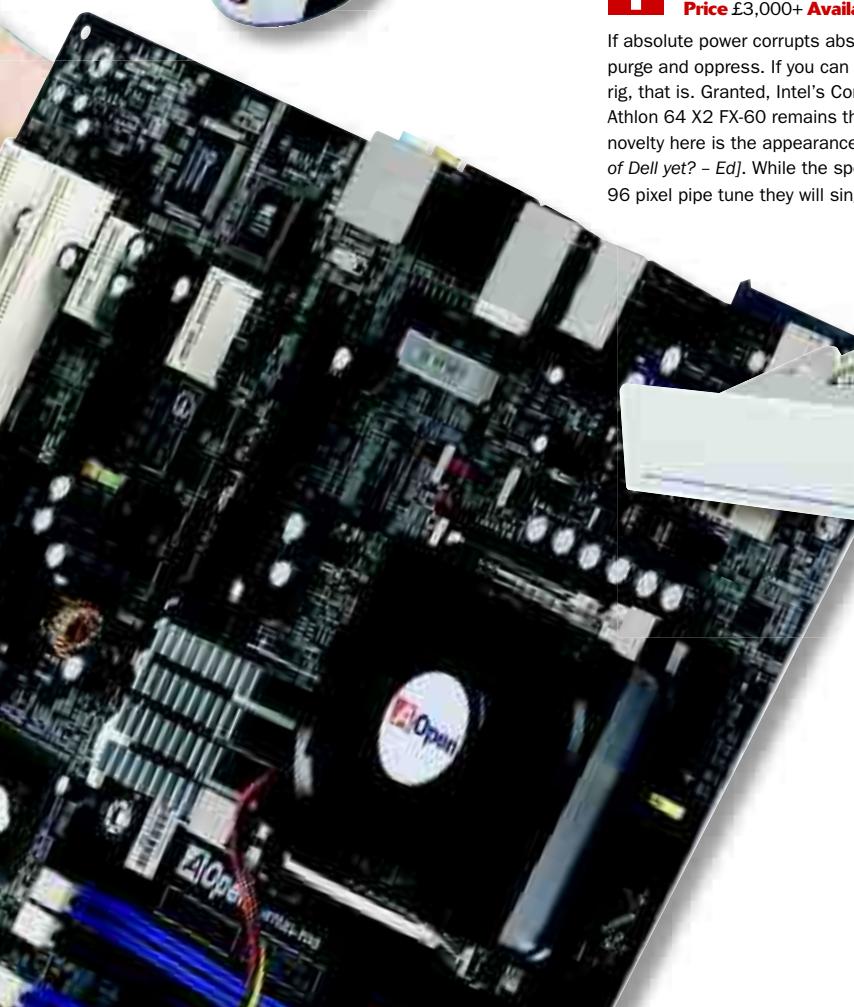
Drive time
⬆ NEC HR-1100
Price £TBA **Available** Summer **Web** www.nec.co.uk

Let's ignore the reality that the only movie studio that had deigned to announce an official shipping date for HD-DVD content has just pulled the plug. And gloss over the tricky issue of HDCP content encryption. Instead, rejoice in the fact that playback hardware for the PC has finally arrived. In case you've forgotten, HD-DVD triples the storage capacity of a single disc layer to 15GB, compared with plain old DVD, and with three layers quintuples overall capacity. Of course, DVD ain't dead yet, so the HR-1100 can read plain old DVDs as well as CDs. This is, therefore, a read only drive. But if it's early adopter HD video fun you seek, this is a more affordable option than an HD-DVD burner. **DVD beater**

CRT redux
← Samsung CTV-32Z30
Price £350 **Available** Summer **Web** www.samsung.co.uk

CRT is dead. Long live, er, CRT. Granted, we at *PCF* are fully paid-up members of the LCD panel fan club. But before you hurl your iPods in the air in despair at our suggestion that there's life left in the glassblower's art, allow us to explain our outburst. You see, large, high-definition LCD, plasma, rear-projection displays – you name it – remain painfully expensive. But this here Samsung box will rock your world with 32 inches of high-definition, widescreen lushness for the seriously sensible price of just £350. The alternatives aren't even close. As for tech specs, the most interesting aspect is the short tube design. It's just 16 inches front to back. The norm for this size of CRT is closer to 24 inches of depth. And yes, before you ask, this is an HDTV, not a PC monitor. But it does sport an HDMI socket – and that's a key new HDCP-enabled, and therefore HD DRM-compliant, interface that is just beginning to turn up on PC video cards. **Panel beater**

Three alternatives…

BenQ FP241W
→ **Price** £650+ **Available** Summer **Web** www.benq.co.uk

Twenty four inches of lovely LCD panel. 500 candelas of retina burnage. A contrast ratio of 1,000:1. 1,920x1,200 pixels. And an HDMI interface. Awesome. Need we say more?

NEC MultiSync LCD20WGX2
→ **Price** £420 **Available** Now **Web** www.nec.co.uk

There are plenty of bright, glossy-surfaced LCD monitors on the market. And quite a few 20-inch widescreen panels, too. But this is first that combines both features. Interesting.

Dell 2005FPW
→ **Price** £330 **Available** Now **Web** www.dell.co.uk

Yup, it's the good old 2005FPW, the original 20-inch widescreen panel. But now more affordable than ever at a smidgeon over £300. Nice one.

ANALYSIS

THE CONROE CONUNDRUM
THIS WASN'T SUPPOSED TO HAPPEN…

→ Yum, yum. Humble pie… tastes so good. Last month, *PCF* mounted the podium and decreed that whatever Intel had up its NGMA-encased sleeve, it wasn't going to be enough to give AMD cause for sleepless nights. So much for that theory. Unless pathological insanity has taken over at Intel HQ and the Conroe processors the firm put through their paces at the Intel Developer Forum (IDF) were somehow hacked to overstate the new chip's real performance capability, then Chipzilla has just pulled off perhaps the most impressive *volte face* in X86 CPU history. Conroe appears to be at least 25% quicker, clock for clock, than AMD's Athlon 64 X2. And possibly much, much more.

The fact that Intel decided to demonstrate such a detailed suite of benchmarks (everything from gaming and media encoding to synthetic tests were included) is shocking enough. In the past, Intel scarcely deigned to acknowledge the existence of AMD, much less wheel out an AMD-powered system and directly compare it with an unannounced future product of its own.

But perhaps the most brain boggling aspect of this seemingly stunning result is the fact that Intel has managed it despite retaining the creaky, ghastly, half-duplex front side bus. Surely AMD's lovely, elegant integrated Hypertransport and memory controller simply can't be beat? Only time will tell. But if this is what Intel can do with an FSB, what hope for AMD when Intel's high speed on-chip interconnect arrives in 2008?

In the mean time, AMD's socket AM2 revision of the Athlon 64 X2 core is due out in a few months. As well

Let's hope Pat Gelsinger earthed himself before recklessly handling a CPU.
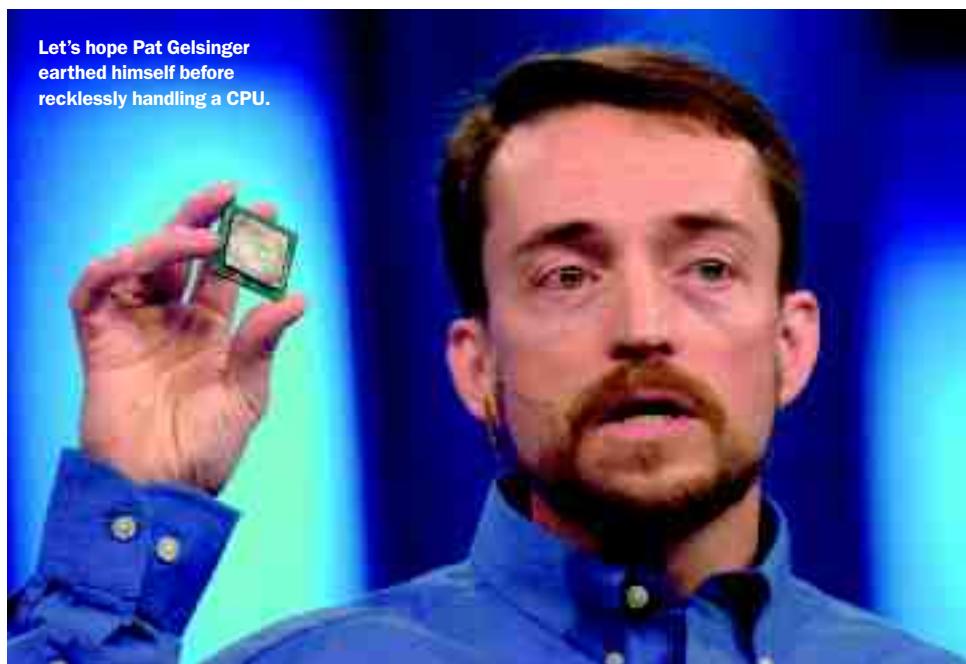
as added support for DDR2 at speeds of up to 800MHz (some rumours suggest the new core may support even higher DDR2 speeds) AMD has done its usual quiet work on fine-tuning that elegant and highly integrated Hammer architecture. While we doubt the gap to Intel's Conroe can be entirely bridged, don't be surprised if it's closer than it looked at the end of IDF. For *PCFormat*'s detail preview of Conroe, hop on over to page 56.

Games latest

NEWS FROM GAMING'S FRONT LINE

James Carey
BOHEMIAN LIKE YOU

Why can't we all just get along with each other?

Co-operation is the name of the game for 2006. It's been something I've favoured in online gaming for some time, but now it looks like co-op play is getting some attention from the mainstream. Ghost Recon: Advanced Warfighter will allow players to play through the entire 'single player' experience co-operatively, each player taking a role in the four-man team on the fly, regardless of where your game may be saved. Titan Quest (see page 28) will also provide co-op adventure throughout the odyssey and the Flashpoint semi-sequel Armed Assault will also feature a cooperative campaign.

There's a kind of meta-cooperative play going on at Bohemia and there's an in depth look at the studio and how it's collaborating with other Czech teams in the face of a hostile publishing environment on p36. Perhaps, as Alec mused, this harmony has something to do with being part of the Eastern Bloc for so long, a kind of 'we're-all-in-this-together' mentality that pervades between competing companies. Honestly, all this is enough to give a cynic like me hope, which is the last thing one wants…

Market Garden, one of the largest airborne operations ever, involved 34,000 men.
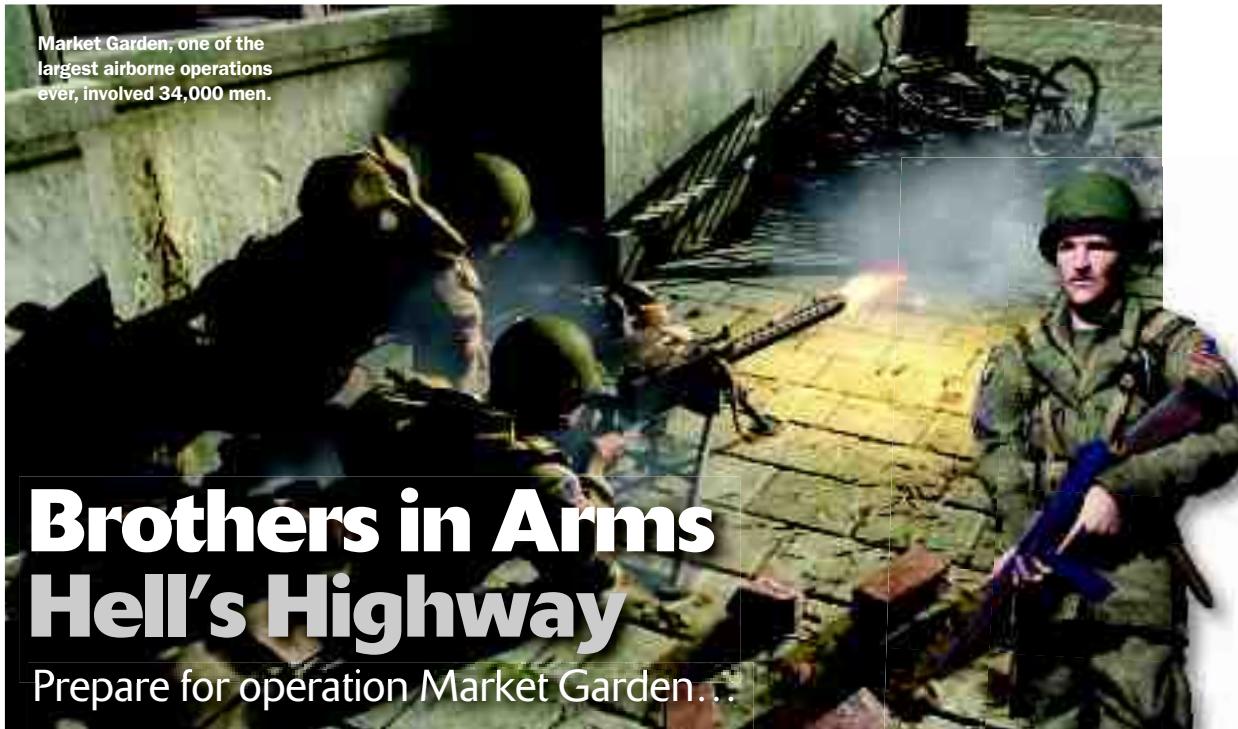
Brothers in Arms
Hell's Highway
Prepare for operation Market Garden…

DUE DATE TBC
PUBLISHER Ubisoft
DEVELOPER Gearbox Software
WEB www.ubisoft.com

We haven't seen the last of Matt Baker, it seems. *Hell's Highway* is the 'next gen' incarnation of the nascent *Brothers in Arms* trilogy, but there'll be more than just eye candy on offer. Set during the infamous

Market Garden operation, we're told that this time around you'll have to actually parachute into the warzone before some missions, so where you land will dramatically alter how you play through certain levels. To facilitate this, the environments will be much more open, so rather than concentrating on the set-piece bottlenecks which previously underpinned the series, Gearbox will be creating a

much more dynamic AI structure and level design. The AI in *Earned in Blood* is sufficiently devious to outflank you, but in *Hell's Highway*, you can expect a whole new level of cunning. The more open design also means that missions will now be more varied. For the first time you'll have to actively scout out enemy positions within the larger

"You'll have to scout out enemy positions within the large, open levels."

levels before attacking, even organising ambushes for enemy patrols. Destructible scenery, complete with full physics properties, will now mean that the wall you think you're safe behind may be shattered at any time, dragging you even further into those frantic WW2 street fights. Once more the series will be focussing not only on intense tactical gunplay, but also the brotherhood of soldiers; so prepare yourself for a deeply moving classical

Earned in Blood's crafty AI will return.

score coupled with long, meaningful gazes of Elijah Wood proportions to counterpoint the action. The series is one of the best blends of tactical shooter and in-your-face action out there, and we'll be driving down *Hell's Highway* with glee in 2007.

The men beside you
See your buddies die face down in the mud

The cinematic feel to the Brothers in Arms series has as much to do with the characterisation as the intense action set-pieces. In Hell's Highway we're promised unprecedented realism when it comes to facial animation and AI interaction. Dragging wounded comrades from the line of fire and passing ammo out to trigger-happy chums in the midst of a deafening, artillery-driven crisis will all cement that feeling that you're not in it alone, even when you're engaging the Germans offline.

There's no shortage of chest-beating US patriotism.

Tom Clancy's Rainbow Six Vegas

Go to Vegas, baby. See a show

DUE DATE Autumn **PUBLISHER** Ubisoft
DEVELOPER Ubisoft Montreal **WEB** www.rainbowsixgame.com

You know when a series is really starting to scrape the barrel when the cast go on holiday. Taking a jaunt down to Sin City, the Rainbow Six boys hit the strip for the usual: hookers, blackjack and whisky. You can guarantee things will take a turn for the worse when they get into town, though, as wherever they are, terrorists always seem to crawl out of the woodwork like sailors out of brothels.

Apparently the city of Las Vegas, with its acres of scantily clad women, desperate middle-aged businessmen and fragrant whiff of corruption, is to be the setting for a massive terrorist threat. Pardon us for being cynical, but if an entire American city was held hostage by terrorists, then they'd probably find themselves hit with a rather hastily re-assigned Marine Corps, and not just a five-man team. That said, if they were all Bruce Willis clones…

Strategically ignoring the tragically abysmal *Lockdown*, Ubisoft is claiming this new *Rainbow Six* title will become the benchmark "against which all next-generation games will be measured." Said benchmark could be to determine the exact moment when it's best to leave a whipped franchise well enough alone.

Terror in Vegas. It's like playing *Counter-Strike* 1.6 all over again.

in the pipeline

Crystal ball gazing is so passé – take a look down the pipe…

SPRING

2006 FIFA World Cup Germany
With the football World Cup looming like a media-hungry beast on the horizon, you can expect to be beset on all sides by an obscene amount of football related nonsense. EA's game, however, is the only official title planned. **www.ea.com**

SPRING

Age of Pirates: Caribbean Tales
This swashbuckling adventure feels like *Elite* crossed with *Pirates of the Caribbean* to us. You begin with a small ship and a lot of open water to explore. You can upgrade your boat, steal another one, hire specialist officers, in short anything your little black pirate heart desires. The sheer scope of the game is very impressive, and you can expect a full review of it very soon. **www.playlogicgames.com**

MMOG Log

If we can't create our own character classes, then we're really not interested…

It's not only this world that's becoming increasingly litigious. Two hundred and thirty Korean subscribers are reportedly suing NCSoft over stolen **Lineage** account information to the tune of $1,000 apiece. Interestingly, part of the lawsuit has been filed by a firm called Lawsuit Asia, a website that auctions lawsuits to other firms, and to top it off, if they want to join the suit, plaintiffs must pay a $1 fee! Nice work if you can get it…

While we're on the subject of courtroom dramas, consider the plight of one unlucky **World of Warcraft** gamer who had his account banned recently, originally it appeared for using a programmable Logitech keyboard and the Linux Windows emulator **Wine**. It was reported that Blizzard picked up the unusual environment that the player was running **WoW** in, and decided that the environment, coupled with the quick repetition of spells afforded by his macro keyboard, made him a bot. It was later revealed that the player had been away from his machine while the macros on his keyboard were still 'interacting with the gameworld' – something prohibited by Blizzard to prevent gold farming. We'll never be able to go AFK for a quick brew with an easy mind ever again…

Blizzard takes a dim view of macro use in *WoW*.

Medieval 2 Total War
It's all just a little bit of history repeating

DUE DATE Winter 06
PUBLISHER SEGA
DEVELOPER Creative Assembly
WEB www.totalwar.com

An Italian gaming mag goof and a few leaked screens lead to a torrent of speculation and denial from both sides of the *Total War* community last month, concerning the next instalment of the hugely popular RTS, but it's now been confirmed. *Medieval 2: Total War* is official.

Using an updated version of the *R:TW* engine, Creative Assembly is revisiting the Middle Ages for its next game. Many in the community had hoped for an entirely new setting, or even a return to feudal Japan, and the news was greeted with both cheers and jeers when SEGA admitted the leak was true. There are already some mods available, and perhaps players have had their fill of the religious struggle in medieval Europe so CA will have to convince players that *Medieval 2: Total War* will offer something new.

Warhammer Online
Age of Reckoning
Stop! Hammer time!

DUE DATE 2007
PUBLISHER Mythic Entertainment
DEVELOPER In-house
WEB www.warhammeronline.com

There's almost certainly some pheonix-like fire-regenerating creature in the *Warhammer* mythos we could refer to here, but we'll settle for pointing out that Games Workshop's MMORPG project isn't quite in ashes after all. Although the original game combusted midway through development, the name lives on in Mythic's latest onliner.

You take on an individual character who must trade, level and, of course, fight. Those hoping for a peaceful time exploring the cities of the Empire, Kislev, Tilea and beyond could be disappointed. As in Mythic's *Dark Age Of Camelot*, a the game will be framed around persistent Realm vs Realm combat, and you will be unable to avoid being caught up in the greater war going on in the background. There are no conscientious objectors in the *Warhammer* universe.

All-out battling action awaits.

MAY

City Life
Social engineering meets city building with Monte Cristo's latest offering. *City Life* is more than just a *Sim City* clone: the key to success here lies in maintaining the cultural stability of your populace rather than just giving them somewhere to live. **www.citylife-game.com**

JUNE

Coffee Break
After the unpleasant demise of the house of Digital Jesters, this corporate life simulation looked destined for the scrapheap. French publisher Nobilis has now taken over this office sim based around the coffee machine. **www.nobilis-france.com**

Rise and Fall: Civilisations at War
As with *Warhammer Online*, this is another project which we didn't expect to see again after notice of its cancellation last year. Without fanfare, though, this promising blend of first-person action and real-time strategy is back on Midway's release list. Hurrah. **www.riseandfallgame.com**

World in Conflict

Soviets invade small-town USA. Where's Swayze when you need him?

DUE 2007
PUBLISHER Vivendi Universal
DEVELOPER Massive Entertainment
WEB www.vugames.com

The world of real-time strategy is close to saturation point. Practically every facet of warfare has already been covered, whether you're a tank obsessive or an American Civil War bore there's a million titles, all offering a similar game experience.

Massive, the team that brought us *Ground Control*, has come up with a fresh idea that could reinvigorate the RTS market just like *Counter-Strike* and *Battlefield* did for online FPS games.

Set in an alternative reality where the Cold War didn't end quite as cleanly as we know it, *World in Conflict* sees the Soviets rocking up in suburban America via their old Alaskan stomping grounds.

Battles involve two teams of eight online players, each taking on a specific area of command within the conflict. For example, one player commands the infantry while another provides air support for the ground troops. This means that each field commander must work closely with their other officers in order to win the day and take control of the map.

If Massive can create a realistic, involving chain of command that actually feels as though you're part of a wider command structure, rather than just an anonymous cog in the machinery of the game, we could see the beginning of a new (red) dawn for real-time strategy gaming.

> ## "Massive is creating a realistic, involving command structure"

SUMMER

Micro Machines V4
After a time out in the wilderness the classic manic racer is back in the hands of its original publishers, Codemasters. With the upcoming *Sensi Soccer* remake as well, could we eventually see the return of *Dizzy*?
www.codemasters.com

Age of Empires III expansion
After the Association for American Indian Development recently called for a boycott of Activision's *Gun* because of its portrayal of native Americans, you'll soon be able to get revenge playing as one of three native civilisations including the Iroquois.
www.ageofempires3.com

Glory of the Roman Empire
When you think Roman Empire, you think war. That, togas and otters' noses in a bag. Enlight is creating an ancient city builder whose emphasis is more along the *Sim City* line of population management rather than *Total War*. **www.enlight.com**

AUTUMN

Titan Quest

More historical hoopla from the team behind *AoE*

DUE DATE May **PUBLISHER** Iron Lore
DEVELOPER THQ **WEB** www.titanquestgame.com

PCFormat spent its formative years watching stop-motion classics like Ray Harryhausen's *Jason and the Argonauts*, Sinbad doing his Survivor number (*Eye of the Tiger*, see?) and most of all, the epic and aptly titled *Clash of the Titans*.

Iron Lore is the brainchild of *Age of Empires* and *Age of Mythology* co-creator, and Ensemble Studios co-founder, Brian Sullivan.

Titan Quest uses the ancient world as a starting point for an adventure on a fantastically epic scale. You'll battle not only Harpies around the temples of ancient Greece but Tigermen along the Great Wall of China and crumbling mummies in the airless tombs of Egypt.

First hand we can attest that all these environments are gorgeous, verdant Babylonian hanging gardens complete with grass that parts and sways as you move through it, and the incredible attention to historic architectural detail make it "a beautiful place in which to whack monsters", as Brian succinctly put it to us.

Comparisons to *Diablo* will abound and there's certainly a heavy stylistic influence from Sullivan's *Age* days at Ensemble, but that's really not a bad thing when you think about it. Not everyone will want to sink their lives into the depths of *Oblivion* (see page 84) and its infinite complexity. Sometimes, you just want to wade through legions of skeletons, knocking them for six with a big hammer, and that's where *Titan Quest* will step in on its wing-ed sandals of +4 dexterity. "It's about the tactile feel of combat" Brian enthuses as *PCFormat* ploughs through an army angry Satyrs, building up a heroic head of steam, "the sounds and sights of a fight." Gazing triumphantly back at the hoofed carnage in our wake, we admit he's onto something…

Myth-ter Myth-terious
"Character creation should happen during the adventure, not before it." Brian's take on the limited choices you face when first creating a character. You work out what kind of hero you'll be as you go, selecting skills on the fly that represent your emerging style of play.

NOVEMBER

Field Ops
The Swiss are all well known for neutrality and Freeze Interactive, the Swiss publisher, is aiming to keep the peace between RTS and FPS fans with this title, which melds the best of both genres. **www.fieldopsgame.com**

Society
Now that *Galactic Civilisations 2* has finally been completed, most of the development team has switched over to finishing off this free MMO. You can bet your bottom dollar Stardock won't be using Star-force on it... **www.societygame.com**

Stranglehold
You may think that balletic gunplay and slow-motion action are the sole property of *Max Payne*, but John Woo got there first with his Hong Kong-based films. This digital collaboration sees him teaming up with Chow Yun Fat once more. **www.midway.com**

WINTER

Drop that axe!
You can see what drop a monster will give when you slay it, because it'll actually be using the item already. No more random hunting for specific armour, then.

Monster mash
Lashings of lovely ragdoll mean battering your way through the monstrous hordes has that Sauron playing elf-skittles feel to it. The force with which they're flung representing how much damage you final blow inflicted.

It's Relicious
Weapons and equipment can be customised by adding 'relics'. A dropped wolf fang may add +20 ice damage, for example. We'll be on the lookout for the +10 wig of Medusa…

"Hollywood history"
The phrase used by Iron Lore to sum up its setting. Don't expect a guided tour of the Parthenon, or a quest that follows the plot of Homer's *Odyssey*. Do expect beastmen by the bucket.

2007

Supreme Commander
Because of the lack of rights to the *Total Annihilation* name, this robot-plagued RTS is seen as more of a spiritual sequel. Chris Taylor, the creator of *TA*, is back with his first stab at the genre since those halcyon days.
supcom.gaspowered.com

Illumina
In a future where a meteor has hit the Moon, an Irish developer is trying to find a new publisher for its "hardcore, kick-ass semi-tactical online multiplayer FPS". Needs a bit of marketing polish at least… **www.illumina-game.com**

2007

TBA

Alan Wake
From Remedy, the development team that brought us the *Max Payne* games, comes another prophetically named hero. Featuring a fully simulated small American town and trademark slo-mo gunplay, this should be more *Twin Peaks* than *Twin Dragons*. **www. alanwake.com**
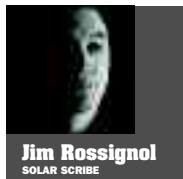
Watchthisspace

Jim Rossignol
SOLAR SCRIBE

THE FUTURE IS A MERE QUANTUM LEAP AWAY

Impossible quantum computer

A computer that gives an answer to a question before it is even switched on

Physicists Paul Kwiat and Onur Hosten are real men of science.

The University of Illinois physics department has created quantum computer that does not have to be turned on to perform tasks. Using a technique known as 'counterfactual computation' the team exploited the weirdness of 'superpositions', in which bits are both zero and one at the same time, to calculate an algorithm without the computer needing to actually make the calculation.

"It seems bizarre that counterfactual computation, using information that is [the opposite of] what must have actually happened, could find an answer without running the entire quantum computer," said physicist Paul Kwiat. "But the nature of quantum interrogation makes this possible."

The light-based single photon 'computer' created by the Illinois team could be the start of a kind of computing technology that outstrips the power of silicon.

"By placing our photon in a quantum superposition of running and not running the algorithm, we obtained information about the answer even when the photon did not run it," said graduate student Onur Hosten, lead author of a *Nature* paper on the subject. "We also showed theoretically how to obtain the answer without ever running the algorithm."

Though this theoretical result isn't going to overthrow contemporary computing techniques tomorrow, Kwiat summed up his research by quoting Nobel laureate Murray Gell-Mann, who said: "We know how to use (quantum mechanics) and how to apply it to problems; and so we have learned to live with the fact that nobody can understand it."
www.physics.uiuc.edu

Tooth-based transmissions

Boffins at the University Of Leuven in Belgium proposed implanting teeth with RFID tags, as an rather permanent 'alternative' to identity cards. Meanwhile, a collaboration between the Science Museum and the Royal College of Art has demonstrated a 'communication tooth' which, once implanted, would allow sounds to be beamed directly to your head, audible only to you. The startling concept was demonstrated at the Science Museum's Welcome Wing in March. It's a fresh take on the phrase 'wisdom teeth' that's for sure.
www.kuleuven. ac.be

This month in
Science
May, 1952

The first commercial jet airline fight took place on 2nd May 1952, with 36 passengers flying 7,000 miles between London and Johannesburg. The British jet project was later blighted by a series of crashes.

Games change you

Videogame personas in causing-people-to-role-play shocker! Heroism is optional…

Stanford University's top gaming researcher Nick Yee has recently unveiled findings which purport to demonstrate that the 'physical' appearance of game characters actually changes people's basic personality traits while they perform interactions with other players inside a game world.

Using a virtual reality setup, Yee conducted a number of experiments to demonstrate how people's psychology changed when interacting with different types of player avatars. The effect was produced both by their own awareness of their appropriated character, and by the appearance of the other virtual people they faced. Gamers were allowed to examine their own avatar's reflection in a 'mirror' being moved to test scenarios where they had to conduct negotiations, such as splitting a pile of money. Taller characters were found to dominate smaller characters in negotiations, but also to stand further away from 'ugly' characters, regardless of the appearance of the people in real life.

Is this a profound insight, or just an acknowledgement of people's innate capacity to role-play? The researchers in question are in no doubt that it says big things about gaming. "These games literally make ordinary people into heroes," says Yee. No sign of astounding heroics in our office as yet. But then perhaps we're all too busy playing *World of Warcraft*… **www.nickyee.com/daedalus**
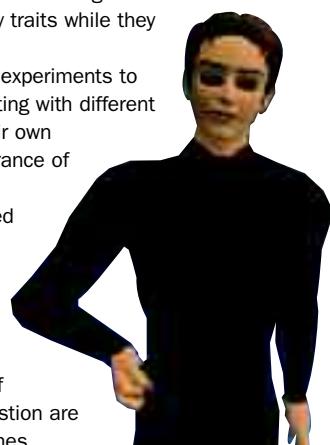
Tracy from Bradstock is also a sophisticated *Second Life* raconteur.

YouTube
www.youtube.com
Offering a free service, YouTube allows uploads of your videos for the entire internet to watch, so long as they're less than 100MB. The site is jammed with fascinating clips of people's lives, as well as promotional clips from popular TV shows.

Google Video
video.google.com
Rivalling Apple's better-known iPod services, Google Video supplies streamed video content, from either home users or major networks charging small fees for recently broadcast programmes. And being Google, there's no fee for uploads, and no file size limit.

IFC Media Lab
medialab.ifc.com
Focusing on supporting indie filmmakers, Media Lab was set up by the Independent Film Channel to provide a place for indie shorts to get seen. There's an online community for the film fans, too.

ifilm
www.ifilm.com
The Viacom-owned ifilm provides a user-uploaded video service, alongside advertising and paid spots. Which only makes it funnier that Viacom-owned MTV2 uses YouTube.

Thewebpages

VIRTUALLY AN ONLINE DIRECTORY

Bandwidth-intensive video is apparently crippling us all.

Slow process
Filesharing is gradually slowing the internet down, warns watchdog

According to the internet's biggest players, online video downloads – legal or not – are bringing the entire internet to its knees.

PCFormat remembers the days when you could set your clock by the sudden slowdown of web browsers as Los Angeles woke up, and we're being told to prepare for a return to those dark days.

A bill has been bouncing around the US Senate over whether ISPs should be allowed to prioritise traffic to their favoured customers (ie. those that pay the most) to balance out the amount of data flowing through their phat pipes.

The two sides are lobbying hard: Yahoo!, eBay and Amazon on the one hand not wanting to pay through the nose for upstream, while on the other side of the e-playground are America's main providers, Verizon, BellSouth, AT&T et al, who argue that they built the net and should charge what they like for it. Their argument

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Rose-tinted
COLOUR WWI PHOTOS
It's not often that a post on a forum warrants a mention on The Web Pages, but this is exceptional. Posted on the World's Armed Forces Forum, this collection of images is astonishingly moving.

Images of the First World War are obviously in tones of grey or sepia, and such a monotone vision of the brutal events are burned into our consciousness. So when you look at a colour photograph of the events, it creates a confusion of disbelief and wonder. Yes, it's stupid, but it's kind of weird to remember that the world was coloured in back then.

There appears to be some confusion over whether these pictures have been coloured digitally, or are genuine Tournassound colour photos – technology only the French had during the war.
tinyurl.com/8h2ge

Woolen organs
KNITTY
"Human anatomy is pretty amazing, but not always pretty." So says the creator of the woollen womb. Knitting appears to be going through a renaissance at the moment. A local coffee shop near *PCF*'s castle grounds offered an 'It's Hip To Knit' night, giving us yet more confirmation that we are far from anywhere that can be considered hip.

And as with anything the young people are interested in, it immediately turns toward naughty bits. Now when you see gangs of teenagers knitting on street corners, you'll know why.

Knitty, offering "little purls of wisdom", is a collection of knitting patterns, from jumpers to, er, wombs. Remember, when creating your own woollen uterus, create the cervix before the fallopian tubes.
knitty.com/ISSUEwinter04/PATTwomb.html

Missing persons
IS THIS YOU?
The 'lost and 'found' MEME continues to bubble away on the net, with increasing fascination for the misplaced minutiae becoming almost a norm. Magazines like *Found* print hundreds of pages of discovered miscellany, but none do so with the intention of reuniting the missing artefacts with their rightful owners.

Is This You? is a collection of found photographs, collated online in the hope of returning the picture to its subject. The site presents you with a few hundred faces, cropped as if on passport photograph paper, which when clicked upon reveals the face in context.

Contacts with successfully reunited individuals are added to any found persons. So have a look, and if you recognise anyone, let them know.
www.isthisyou.co.uk/thumb.html

is, they state, bolstered by the difficulty currently being encountered when trying to cope with the significant demand for streamed video, or shared video files.

TRAFFIC JAM
According to network infrastructure company CacheLogic, 60% of the

"For the first time in several years, the internet is starting to feel the strain"

current online traffic is peer-to-peer file sharing, of which 60% is video. With services like Google Video streaming video content, Movielink offering feature-length films for download, and the current enormous rise of 'vodcasting' – RSS-fed video programming emulating audio-based podcasting – moving pictures are the internet's current massive obsession.

The ISPs explain that if companies such as eBay and Google want to be certain of the fastest possible service, they should pay an over-the-odds rate for a priority service. US Senator Ron Wyden is joining the fight against such a move under the name of "network neutrality". Rejecting the ISPs' suggestion that they constructed the

structure, he explained that it was the consumers who had funded the creation of the current internet, and a two-tiered payment system would pass further costs on to those consumers.

Meanwhile, here in the United Kingdom, many well-known ISPs are already starting to feel the bandwidth pinch. Providers like PlusNet and Force 9 have recently been forced to redefine their unlimited download packages to limit heavy users of P2P and FTP protocols to what they term 'fair usage'. With 24Mbps connections becoming increasingly common, and more IPTV services due to be announced in the coming months, is the information superhighway heading for gridlock? **PCF**

Forum
Something Awful
Despite being a mean but funny site SA has one of the better forums on the internet. Ruled with an iron fist, the slightest indiscretion sees you banned, and needing to pay the entry fee again. Perfect!

forums.somethingawful.com

Public announcements
I LIKE DRAWING
We've an endless enthusiasm for the more elaborate and inventive forms of public decoration. (Or as The Man would have you call it, 'graffiti'). I Like Drawing is the home of "a man with a pen."

Ian Stevenson is that man, and his pen has taken him places. Clearly discovering the joy of writing on objects, walls, and anything that doesn't move, his drawings have earned him exhibitions.

Describing himself as "born in Paris on a summer's day, 1794, in the midst of the French Revolution," Stevenson is clearly part wild artist, part lunatic, which is also demonstrated throughout his work. Big smiles are given to turn left arrows, entire office walls are strewn with bendy, twisty people, and there's always room for a happy face on a nearby cone.
www.ilikedrawing.co.uk

Here's Johnny
LOVELY JACKDOLL
It's possible that research might lead to finding out more about the individual responsible for Lovely Jackdoll, but we fear it could lead to an extension of the amount of time we spend gibbering and rocking in the corner.

If heaven and hell were to be involved in some sort of inter-dimensional car crash, it might look something like these photographs. Plastic Johnny Depp dolls are posed in peculiar dioramas, accompanied by scripted conversation between the differently dressed characters, and P-chan the chipmunk. A real, living chipmunk.

It hurts our eyes and minds. Seeing plastic Depp in drag, with plastic Depp as a pirate, putting on face masks in a dressing room… off we go to the corner.
www7.plala.or.jp/filmodd/minijack2-2.html
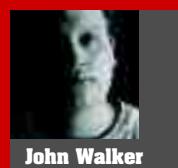
Copyright watch

John Walker
STICKS IT TO THE MAN

John Walker thinks it's about time we took a stand against encroaching copyright controls

There's a reason why this column watches copyright. It's a worry that it might get lost in the outcry of another innocent person imprisoned, another family wrongfully sued, another press release of half-truths from the recording industry, another announcement that sharing funds terrorism… These must be exceptional cases; they must be blips in the system, but they're not. Here are a couple of examples of why people need to wake up.

Australian schools pay $31million (£13.1m) a year for the right to use photocopiers for teaching their pupils, whether they copy material or not, and the Federal Court is deciding what figure will now be charged for using websites in education. Whatever it is, it will be more than the schools can afford, and any extra charge will ensure the web is switched off in their buildings. Expect this to be repeated worldwide soon.

The next generation of DVDs won't support the "managed copy" option that the already purchased tech has promised. Nor, in many cases, will they work at all.

The power of Hollywood's moguls is now so great that Sony, Philips et al are only answering to them over the features their new discs will give us access to. Neither Blu-ray and HD-DVD will support component video connections or non-DVI graphics cards, meaning your year old flat-screen monitor will soon be useless for playing new discs *[as revealed in last month's HD-DVD vs. Blu-ray feature – Ed]*. Your graphics card? Buy a new one. And why? Because otherwise, the Advanced Access Content System (AACS), a concoction of Hollywood companies hiding behind a meaningless name, will shut you out of the features you're paying for. The technology companies, panicking in the face of these over-eager behemoths, have screwed blissfully unaware consumers over.

At present, the situation's totally out of control, and it has to be addressed. Copyright is hurting you every day. If anything else were costing you so much, hindering you so abysmally, you'd say something, you'd do *something* about it.

Hollywood's content control systems could hit us all in the pocket.

Save time! Save money! Subscribe!

PCFMail

DISCUSS HOT TOPICS AT forum.pcformat.co.uk

Pod castaway

I read your article about *Videora*, the wonderful program I happened to stumble upon by chance that converts movie files to the iPod format. I was having problems playing movie files that I had converted using *Videora* on my iPod and for some reason didn't think to check the forums until I read your article. I would just like to warn readers with Version 1.1 of the iPod firmware that there is an inherent flaw and that if they want to play any movie files to revert to the version 1.0 software using the old

The 'Pod requires a prod to play video.

version of iPod updater (this should still be under iPod on the start menu). There are many users on the iPod forum complaining of this problem and they have said that reverting their devices back to the 1.0 firmware has solved the problem.

This has made me question my rigorous updating compulsion and has swayed me towards the old saying of 'if it ain't broke, don't fix it'.
Thanks,
PAUL CORNWALL
pc48@kent.ac.uk

PCF says Oops. Thanks for the tip and hopefully Apple will release an official firmware fix soon.

And the other hand, Zaphod

While browsing through last month's issue (PCF 185) I noticed the test on different IM clients. I thought that I should mention *Trillian* as another alternative to those listed in the article. With *Trillian* you only need to have the one program running to take care of IRC, AIM, MSN, ICQ, Yahoo and, with a bit of know-how, Google, too. You can therefore save some RAM if you have more than one client running at one time.

Trillian may not have all of the features of other IM clients but there is a host of plugins and different skins avaliable.

Lastly it does seem to be more reliable than *MSN Messenger* (it used to crash all the time for me but then that was probably something wrong with my computer itself rather than the program). Overall I prefer using *Trillian* as it groups all my IM clients together in one program.
LEE SIMCOCK
l.simmy@gmail.com

PCF says We also love Trillian and consider it second only to GAIM in the IM stakes. They're just too convenient to compare with the proprietary clients…

You gotta fight for your right…

I've recently played *Fight Night Round 3* on my mate's new Xbox360 and, being a boxing fan, I can appreciate the realism that's been achieved – it's an amazing game. Why then is this available on just about every platform except the PC? There seems to be an abundance of RPGs, RTSs, FPSs, etc. PCs are capable of being used for this kind of combat game aren't they?

Hopefully you'll tell me that this is in development and will be out soon, though I suspect not! I don't really want to shell out hundreds to play one game, although it is tempting as the new Xbox is pretty impressive in HD.
PAUL MARTIN
pwjmartin@yahoo.co.uk

PCF says It's unlikely Fight Night will make it to the PC – mostly because these kind of games work better in a 'mates around the TV

This guy is about to get a closer look at the bump mapping on that glove.

with a joypad vibe' than on a small screen with keyboard and mouse. However, given the increasing number of lounge based PCs, perhaps it's time for publishers to take a risk?

Gratuitous plug

My name is Bret Olivere. I own Flight Club International: a community for virtual pilots and air traffic controllers. I run a *FS2004* flight simulator server, teamspeak server and website.

Our community is really taking off *[Ouch… – Ed]* and doing well, in three days we've gained 35 new members. Some retired air traffic controllers and real pilots form part of our community as well.

We were wondering if you would be willing to advertise Flight Club International to help the community grow. Let me know what you think.
BRET OLIVERE
FLIGHT CLUB
jazzsaxpro@hotmail.com

PCF says Maybe if you'd included the URL in your email? The first rule of Flight Club is, you do not talk about Flight Club…

Online telly

I was reading a friend's copy of your magazine at work recently (issue 185) and there was an article about video downloads (BBC, Sky etc) some of the sites were free and some were pay per download. Could you please let me know the BBC download site, I've been onto the BBC home page and there doesn't seem to be a link to their downloads.
ADRIAN WELLS
adrian.wells@ntlworld.com

PCF says The latest BBC trial can be found over at www.bbc. co.uk/multicast, although you'll need to subscribe to one of the recommended ISPs to take part. Watch this space for regular online entertainment news.

Mail of the month

OVER TO YOU
What are the blogging habits of PCF readers? Find out over on p146

Having read your recent reader survey (issue 186) I was glad to hear I'm not the only one spending too much time in front of my PC. I started wondering what I'm actually achieving, though. Speaking to friends, I have concluded that we fall into a totally new group of user.

We are familiar with gamers, who are happiest bleary-eyed at 4am playing Counter-Strike. We know of light users (like my dad) who can manage Word or send an e-mail, but tend to forget how to find the Control Panel.

However, are you familiar with the 'Tweakers'? To be classed as a tweaker you must spend most of your time tuning your PC. You have *Far Cry*, but rarely play as you are too busy overclocking your graphics card or updating drivers. There are hundreds of videos and photos you could be looking at, but wait, the priority has to be a new background and clearing unused icons. Generally, if you come away from your computer having achieved really very little, you are a definite candidate.

I'd be interested to hear if there are any more tweakers out there or if there are any

new categories of PC user! Meantime, I have just noticed that I urgently need to change the toolbars on *Word*.
DAVID AMOS
davideamos@hotmail.com

PCF says We hesitate to use the phrase "obsessive compulsive" lightly, but it's rather unsettling to see the amount of effort certain PCF staffers put into creating chic, minimalist desktops while their physical desks are littered with empty crisp packets, miscellaneous slimes and old, broken PC cards.

Mail in and win

We've teamed up with ace memory suppliers Crucial www.crucial.com/uk to give the author of our letter of the month a fantastic 512MB Gizmo! USB memory drive worth over £15. It works flawlessly with every version of Windows after Me.

You can air your views and write to the team at PCF Mail, PCFormat, 30 Monmouth Street, Bath, BA1 2BW, or via email at the address below. Or you can visit our forum at forum.pcformat.co.uk.

pcfmail@futurenet.co.uk

The ultimate guide to Vista

The next-generation Windows has been delayed until 2007 – Alec Meer decides whether the wait will be worth it

You don't need Vista. You also don't actually *need* a haircut, but sooner or later you'll want one, because the old one's getting messy and frustrating. A little more down the line, your mates will actually start to mock you for your hideous, uncut hair. Even though you're by now utterly alone and taking eight showers a day in the desperate hope that the bad feelings will go away, you still don't actually *need* a haircut. Things would, however, be better if you did have a haircut. Come on now, come with good old *PCFormat*. We're going to replace your tatty old hair… erm, operating system, with a nice, fashionable new copy of Windows Vista.

Before you sit yourself down in the chair and we drape a stubble-flecked towel around your shoulders, though, let's give you a quick run-through of what your options are. Vista is coming – though it has rather annoyingly been delayed until early next year now, and given how many other setbacks it's been subject to, that isn't a given either – but that doesn't necessarily mean the follow-up to Windows XP is definitely for you just yet. So, for your consideration, here is *PCFormat*'s ultimate guide to the PC operating system of tomorrow – today. But is it worth the ever-growing wait? In absolute honesty, much as this magazine is about celebrating the PC and technological progress, right now we'd say no. It's a very attractive, modern-feeling operating system, but there's nothing in there that feels vital, and more importantly it's an unacceptable resource hog in its current state – something due to be addressed if the internet rumours (denied by MS) that a huge amount of Vista's code is in for a rewrite before its January release hold water. That said, it took a couple of years before Windows XP became an essential upgrade over Win 98, so this is likely to be no different.

Incidentally, the basis for this guide is Windows Vista Ultimate Edition beta 2, build 5308. It's neary complete, but nevertheless still very rough around the edges – which does at least mean we're fairly up to speed with the multifarious (but hopefully far less frequent) ways the finished product will crash…

> ## "Internet Explorer is now a core component of Windows Vista"
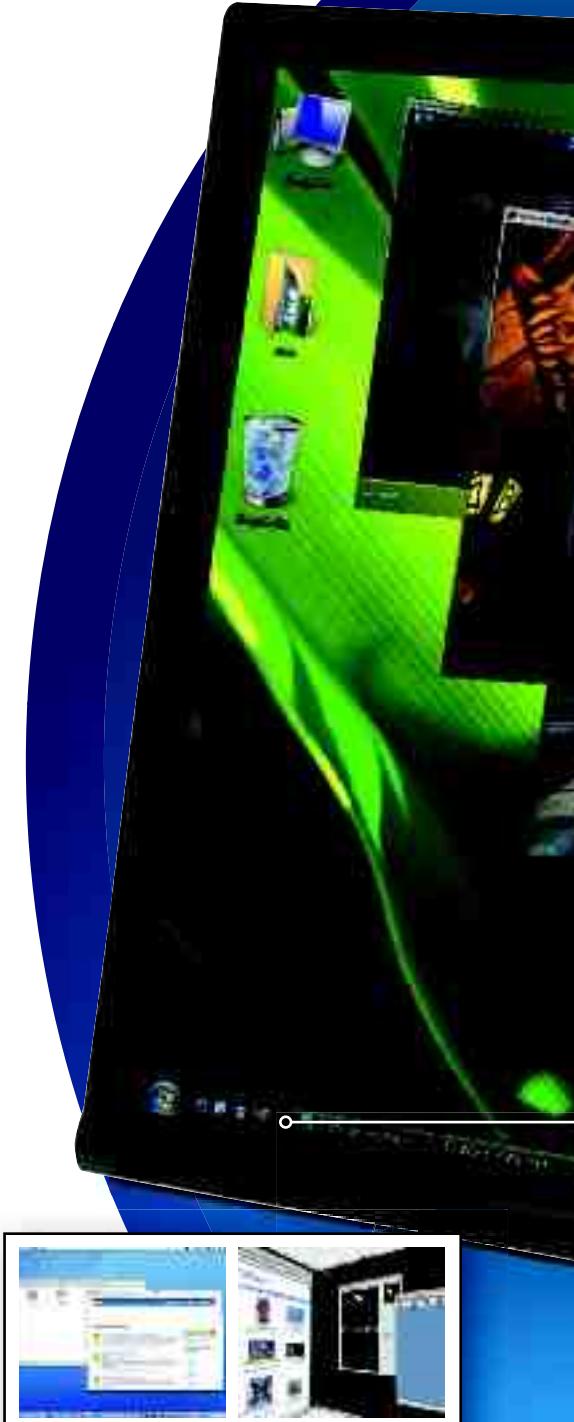
THE COMPETITION

OSX 10.4, Tiger, is still soldiering on over on Macs, despite the recent switch to Intel processors. Given that many of Vista's features have only just caught up with OSX, we can expect the top-secret next Apple release to outdo Microsoft to some extent.

Over on Linux, a new tech called XGL has seen the first 3D elements introduced to the interface. It's technologically superior to Vista, if as yet less attractive on a purely aesthetic level. We'll cover XGL in more depth when we review the next version of Ubuntu, Dapper Drake, in a couple of issues' time.

GOING LIVE If your PC's capable of the top-level Aero Glass interface, everything in Vista is rendered as a 3D object – meaning hoary old [Alt]-[Tab]ing between static program icons is replaced with either a 2D window showing a live preview of each running program, or, by pressing [Alt]+[Win Key], you get this stylised, scrollable roster of each app. In this example, we can actually see folk dashing around in both *World of Warcraft* and *Oblivion* simultaneously, and our DVD playing in the background. In the interests of fair disclosure, *WoW* crashed shortly after this.

PERIPHERAL VISION Yep, the controversial Sidebar is back. Microsoft is talking up inter-compatibility between the Sidebar and Windows Live, its customisable homepage-cum-portal. You'll have access to all your news feeds and widgets both on your home desktop and from any web-enabled PC.

CLICK ME 'Start' is dead and buried: in its place the soon-to-be ubiquitous Vista 'pearl'. Like application window borders, the task bar is now transparent. This serves no purpose other than to make the interface look prettier – which, in fairness, it does, as do small touches such as halo effects around buttons and a swooshy zoom as windows minimise and maximise.

Performance

So it looks the part and comes bundled with all manner of bonuses, both worthwhile and futile – but how well does Vista run?

Though almost everything in Vista 5308 works – an improvement on the last couple of builds we've dabbled with – this is still a beta, and we can't help but attribute the delay of the OS's release, at least in part, to the performance and stability problems seen in this latest version. Officially pooh-poohed rumour-mongering has it that some 60% of Vista's codebase has to be fixed before launch, especially the Media Center component, which is indeed as flaky as a man going cold turkey on Head & Shoulders in this current build. All that said, *PCF* has been running Vista 5308 as our day-to-day operating system for the last few weeks, and despite a plethora of problems, it hasn't been an agonising experience – there's definitely a sense of it being 'nearly there'.

DRIVE DISASTER
The basic file backup app from XP has been vastly expanded, to the point where third party applications are doubtless quaking in their archived boots. That said, it's nothing hugely complex, but its automated scheduled backups will be more than enough for most folk.

SAVE ME
System Restore, an absolute lifesaver in XP to anyone who knew what and where it was, has earned a slightly more prominent role in Vista, though finding it remains slightly arcane. It's now under **Control Panel➔System and Maintenance➔Backup and Restore**, and also offers the option to protect or leave unmonitored individual drives rather than simply set the whole shebang to on or off.

PIRATE'S BEST FRIEND?
A surprising addition to the latest Vista build is *Windows DVD Maker*. It's surprising not because it's there, but because it isn't limited to just WMV files and Media Center recordings – chuck in MPEGs or AVIs you have codecs for, and it'll merrily transcode films onto a set-top box-friendly DVD. You can even set up menus and chapter selection screens. Which means that discs full of DivX episodes of *Lost* can be turned into a DVD. Encoding times will vary wildly depending on your processor, but you should be somewhere around the one hour mark on a fairly decent machine.

On DVD-related matters, a word of warning – some very old DVD drives (from six years ago or more) won't be able to play back video discs in Vista. Data reading will still be fine, and to be honest if you're trying to get Vista running on a six-year-old PC, not being able to play DVD movies will be the least of your problems…

HOW DOES IT PLAY?
Vista is a hungry beast – even on our test rig with 2GB of DDR2 RAM, it managed to accrue a ridiculously huge pagefile of 1.2GB. This doesn't bode well for game performance, which is hard to gauge, due to the basic and outdated nature of the beta drivers provided for the OS by NVIDIA and ATI. However *Oblivion*, the most demanding game of the moment, ran acceptably, though slower than in XP. *Quake IV*, however, wouldn't even install, suggesting there'll be a whole lot of compatibility patches for well-loved titles soon after Vista's launch.

TELL IT LIKE IT IS
My Computer has been given far more visual appeal, so granddads can now gauge how much room is left on their drives without ringing up PC World to ask what a gigabyte is. The option to remove programs hovers usefully above, rather than in the depths of Control Panel, so clearing HDD room is far more intuitive.

SUPERFLY
Plug an external storage device into Vista, and it'll ask if you'd like to use it to 'speed up your PC'. While the idea of using a camera to get a better *Quake IV* framerate is ridiculous, the idea isn't without merit – Vista's Supercache technology uses your device as an alternative page file (so, if there's not enough free RAM, Windows uses a portion of one of your drives as 'psuedo' memory). A 1GB USB 2.0 flash drive, will cache data more quickly than your hard drive can, so will result in a minor performance boost if you can't afford more memory instead.

SYSTEM MECHANIC
Vista's **Problem Reports and Solutions** tool is a major stride forward for a Microsoft app being able to self-diagnose and heal itself, rather than simply soldiering on regardless until it falls over. That said, it does tend to say 'No solution found' quite a lot.

SING FOR YOUR SUPPER
For the first time ever, Windows now includes a benchmarking app – of sorts. The performance rating gives your PC an overall score from 1-7, as well as sub-scores for CPU, RAM, HDD and 3D card. The plan is that apps and games will ship with a recommended minimum score on the box, so you have an easier idea of whether your PC's up to running them.

Meanwhile...
Elsewhere in MS land

1 Coinciding with Vista's roll-out is a suite of 'Live' services, essentially MS' play on the Web 2.0 remit. You may have seen **live.com** already, a customisable homepage full of RSS feeds, inboxes and widgets. There's also *Live Mail*, a Hotmail replacement that apes *Outlook Express*.

2 For once, *Office 2007* Looks to be far more than the traditional slew of baffling new features. The major change is a new UI, a big departure from the **File**, **Edit**, **View** layout of yore. Instead, core functions appear in a 'ribbon' of tabs, meaning it's easier to find essential functions.

3 *Internet Explorer 7* is famously a component part of Vista, but will also be made available for Windows XP. It's all too easy to label it a response to the growing success of Mozilla *Firefox* but, well, it is. Tabbed browsing, wider plugin support and increased security – notably a phishing filter – are its biggest deals.

What's new?

Vista has come on leaps and bounds since our preview of beta 1 last July. What are the new features, and do they make the OS a must-buy?

The new Control Panel is more intuitive than before.

PCF's first impressions of Vista are that it's very much XP with a facelift. But then, that's to be expected – people are very much used to how Windows works after all these years, hence a major departure from its basic operation might have been a mistake. On taking a look under every rock and behind every picture frame, though, there's a whole lot of new technology beavering away behind the scenes. Take, for instance, item-specific restore. Right-click on any file or folder, select **Previous Versions** and Vista will dredge up a prior copy of it – perfect if you've made a major change to a document and want the original version back, or perhaps restoring a *Half-Life 2* savegame you'd inadvertently overwritten.

LOST AND FOUND

QuickSearch is an long overdue addition to Windows, performing the same function as *Google Desktop Search* and Apple OSX's *Spotlight*. To be honest, there isn't a huge amount to report – as with *GDS*, type in the name or partial name of your desired file or information, and the results pop up near-instantly, instead of after the laborious trawl to be found in XP. A neat touch is a drop-down list of search types, be it images, instant messages or appointments in your calendar – it's a gentle nudge to stop thinking about the contents of your PC as files and folders kept in and accessed from specific locations, but rather as simply forms of information you can access from anywhere at will. It'll take some getting used to – *PCF* still can't quite resist the temptation to hit [**Win Key**] + [**E**] and navigate over to a desired folder, but it has the potential to be nigh-on revolutionary once users are used to it.

If ease of access to information is one of Vista's watchwords, then security, the perennial bogeyman lurking under Windows' bed, is surely

Plug in a second monitor, boot up Vista and it'll ask whether you want to span or clone your desktop.

the other. Experts speculate that Microsoft's need to ensure Vista is as safe as houses is partially responsible for the launch delay. While MS operating systems have a long history of potentially dangerous vulnerabilities, that's not to say it's no safer than XP in its current state. For starters, you're no longer running in Administrator mode by default, meaning any non-official process or program that tries to run should have to ask your permission first. In practice, it's slightly irritating, resulting in a near-constant barrage of question windows about everything from installing new programs to running Control Panel items; there is the option to run in Admin mode, but the first time you're given the option to prevent a piece of malware from rubbing itself all over your registry, the pestering will doubtless seem worthwhile.

Windows *Defender* is the source of this malware paranoia. It's both an expanded version of Microsoft *Anti-Spyware* and the hub from where you can alter how choosy Vista is about what you run without being presented with a permission box. To be honest, interacting with it isn't essential. The level of protection it offers is comparable to that of third-party apps such as *Spybot*, and Microsoft's recent actions suggest it may not be as aggressive towards unwanted software as other apps are. Meanwhile, Windows *Firewall* has had a much-needed overhaul, crucially now monitoring outbound as well as

> **"Vista may not be as aggressive to unwanted software as other apps are"**

inbound web traffic, so it can prevent your data being sent to decidedly insalubrious third parties whithout your knowledge.

XP: THE SEQUEL

Elsewhere, Windows *Movie Maker* and *Media Player* have both received overhauls, the latter sporting a look and interface far more in keeping with the rest of the operating system than *WMP 10* managed with XP. Vista's instant Search is fully integrated into it, as is the breadcrumb navigation bar. There's also tantalising promises of an online store, sure to offer video as well as music downloads.

Then there's the slightly bizarre but potentially helpful Windows Collaboration, which enables other folk on the same network as you to login to a session wherein you can demonstrate various applications or presentations to them. At the time of writing, only the Sidebar worked over Collaboration, despite promises of being able to share the entire desktop. Should this eventually come to pass, the app could be subverted so that multiple people on a wireless network could all watch the same movie as it plays on one PC – perfect for those moments where there's no more space in the front room for a couple more people to attend your high-def screening of *Weekend at Bernie's 2*.

Of course, not all of these new features – and those on the following pages – will be included in every version of Vista. See our guide to the different editions below...

Which Vista?

Choose your own operating system…

1 Home Basic will be yet another jip for purchasers of those £300 crapbag PCs cropping up in supermarkets, this is a no frills, no 3D effects, email and word processing-centric take on Vista. *IE7*, *Windows Defender* and desktop search are included, at least.

2 Home Premium is probably what you'll be after, and the version that should be at the around same price point as XP Home currently is. The Aero Glass interface survives intact, as does Media Center and the bonuses, such as the photo gallery and movie editing apps.

3 Vista Business and Enterprise aren't aimed at leisure users, so will be lacking some of the 'fun' elements in favour of drive encryption and an emphasis on multiple users. Ultimate combines Premium and Enterprise, thus appealing to the home business owners.

Actual size

Open your magazine up and hold it in front of your monitor. This is exactly the view you'll see early next year. Sans your own reflection, of course

LOUNGE LIZARD
Media Center – perhaps Microsoft's finest hour – is back, and this time it's standard in the Home Premium and Ultimate Editions. It's not a big departure from *MCE 2005*, but looks nicer and includes bonuses such as being able to burn discs and synchronise media to supported players and external devices.

VANGUARD
Here's Windows *Defender* in all its oddly subdued glory. If it's doing its job right, you shouldn't have to see this screen at all, but essentially it performs as any other anti-spyware app does.

TALK TO ME
Windows *Live Messenger* (formerly *MSN Messenger 8*) isn't an out-of-the-box component of Vista, but its design has elements in common. Not totally though – it's completely lacking in funky transparency gimmicks, which will hopefully be incorporated once *Messenger* makes it out of beta status.

CHILD'S PLAY
*Mine*sweeper and *Solitaire* finally get an overhaul, complete with semi-3D effects, while a roster of new, achingly family friendly games also make themselves known. 'Proper' games that support Vista's new installer method will pop up with a high-res icon and publisher, developer and age-rating details.

Computer

vista

Recycle Bin

Windows Defender

Home   Scan   History

No unwanted or harmful software detected.
Your computer is running normally.

Scan statistics

Quick scan
Start time: 09:41
Time elapsed: 00:00:57
Objects scanned: 13070

Status
Last scan: Today at 09:42
Scan schedule: Daily at 09:00

Windows Live Messenger

Meer (Online)
<Type a personal message>
(41)   (0)

Find a contact or number...

You have Beta Invitations. Click here to share Messenger with your family and

Buddies (51)
Adam F - Bring em on!!!!
Alan (V for Venial) - Remember re...
Becky - Family Tree Super Sleuth!
botherer
Busy Bee - So much for planning a...
Christo - www.techspeed.com/g...
Commander Keen (Mikey C)

Doherty causes court ma...
Pete Doherty has caused chaos after appearing to kick a

Play Video

Chess Titans
Game   Help

shuna, may 2005

> by date

68

vol

BEND ME, SHAPE ME
Those irked by XP's three equally hideous colour schemes
will be heartened to know Vista's appearance is far more
malleable. Well, in theory – the trouble with transparent
window borders is that they're, well, transparent. You can,
however, choose whichever exact hue you want them to be,
and even adjust their opacity to suit your tastes.
Interestingly, Vista uses the same Themes system as XP,
so third-party skins should appear very swiftly.

NEW SEEKERS
Here's Vista's *Desktop
Search* app. Just type a word
into the default box and it'll
bring up both files that
contain it in their name and
also any emails, documents,
instant messages and the
like that mention it.

« Change your colors ▾   Search

eritage   Sky   Heart   Candy

ble transparent glass

ty:

ide color mixer

Save   Cancel

« Computer   ▾   vista

Show results for: ire Kir   Search in: Computer

Views ▾   Organize ▾

Documents
Pictures
Music
Last 30 Days Document
More   »

Name   Date modified   Authors
egl
homepremium
controlpanekl
system
87.15_forcevare_vista_x86

81 items

Offline status: Local

Messenger 8.0 BETA   Windows Defender   Chess Titans

Think tanks

A number of established Czech developers are banding together to form something greater than the sum of its parts. James Carey asks them about their big IDEA

The Czech Republic has a relatively high density of game developers for such a small country. Most of the few hundred men and women who work in the bohemian industry know each other by sight if not name, and get together annually for the republic's own tiny Game Devloper's Conference. The country is a creative hotbed, especially when it comes to PC gaming (the Xbox never officially went on sale there), producing a string of critically acclaimed military masterpieces like *Hidden & Dangerous* and *Operation Flashpoint*, and more recently successes in the strategy market with the *UFO: Aftermath* and *Aftershock* games. Times are changing for PC games, with big publishers concentrating more and more on console titles, but new avenues of online distribution opening up for PC users, some analysts predict that a sea change in the way we hear about, buy and play our games is just around the corner. Now more than ever, new

developers are struggling to get original IP recognised and even well established, proven devs are having to fight for recognition in this ever-more competitive industry.

RECIPROCAL REPUBLIC
The Czech development community is reacting to this hostile environment by doing something quite startling. Rather than try to compete with one another for

future of Czech game development. Bohemia Interactive Studios, Black Element and Altar Games have all had commercial success with wildly different titles, and they're certainly not trying to merge into one development house. They wish to maintain their separate reputations, as they're all known to excel in a specific field, be it strategy for Altar, for example, or military sims for BIS. Neither are they trying to become 'dev-friendly' publishers in the way Epic, Ritual and 3D Realms did with the Gathering of Developers, though their reasons for co-operation are

both ends of the chain." The aim of IDEA is to provide a framework which developers can take advantage of, taking some of the business stresses away from small development teams and give them a strong marketing voice, legal services and contract advice. "We have the same troubles," explains Lukáš Vesely, Project Manager at Altar, the only developer within IDEA who is currently signed to one particular publisher. "It's expensive to go to E3, difficult to get publishers to see small developers, IDEA lets us share resources while remaining separate."

WORKING TOGETHER
Sharing resources is a common theme at IDEA. They use an internal Wiki to ensure that everyone within the organisation is aware of what everyone else is doing. People post their activities and availability. "Your potential staff numbers change from 17 to 50 people." Enthuses Jiri Rydell, Marketing Manager at IDEA. "One studio will finish work on one area of a project, and that frees up some programmers or artists, so they can then say 'hey, another team in IDEA is working on a different project' and they can move over to that." Everyone keeps working, everyone keeps getting paid, games are made faster and there's less hassle looking for staff

"Your potential staff numbers change from 17 to 50 people"

JIRI RYDELL Marketing Manager, IDEA Games

publisher attention in a tough market, developers are coming together to support and encourage each other's development and foster new Czech talent.

By sharing staff, development facilities, resources and marketing services, a burgeoning 'creative's co-operative' has formed in Prague, with a core aim of ensuring the

outwardly similar. Rather, the Independent Developers Association (IDEA) is aiming to be something in-between. "Our goal is not to compete with publishers," says Marek Španel , Managing Director of Bohemia Interactive, the most prominent studio within IDEA. "Publishers have an important place in development, we want to serve

Altar Games is based in the Czech city of Brno.

The *Armed Assault* team from BIS outside IDEA games HQ.

Tucked away in a small town outside Prague is Bohemia's Core Team.

and facilities, since all the teams share the same space.

Making the most of your resources seems to be the central tenet of IDEA's philosophy. At Bohemia, the motion capture technology used in *Operation Flashpoint* required a dedicated studio, so it built one. It now uses this facility to supplement its income by hiring it out to Czech movie studios for feature films. *Alpha Prime*, another game under development at IDEA, is aimed squarely at a mainstream shooter audience, but because the IDEA organisation has access to the mo-cap facility, *Alpha Prime* can feature motion captured animation, saving time for the animators and money for the developers, Black Element software.

By helping each other out with the individual resources each studio has they all become stronger and the Czech industry is significantly healthier than it was before IDEA existed. It's a strangely laid back, co-operative harmony that perhaps could only ever find success in the Bohemian heartland. It's something *PCFormat* suggested to Jiri. "In the future, if IDEA is successful perhaps we'll branch out to other countries," he mused. BIS already has an Australian division which work on the company's *Virtual Battlefield System*, a hardcore version of *Flashpoint* it licenses to the American and Australian militaries. "But we all know each other and it's taken years to build this working relationship." At the moment the group is just trying to get publisher attention for the games currently under development at the various studios, and strengthen their bargaining position with them. "Creativity is getting a little lost in some development." Jiri suggests. "We are trying to make our games and *then* trying to sell them, so we need have a strong position. To reclaim some respect from publishers, we need to earn it." If that seachange in PC gaming is coming their big IDEA for collaborative development makes for some interesting food for thought.

Alpha Prime

Miner's strike

IDEA STUDIO Black Element
WEB www.blackelement.net

Unlike the tricky concepts explored in *Armed Assault* and *Game 2*, *Alpha Prime* is an accessible sci-fi shooter, taking elements from the FPS successes of the past two years and then bringing its own new concepts to the mix. You'd be forgiven for thinking this was id's *Doom 3* engine but it's proprietary to Black Element. Add to that bullet time nods to *F.E.A.R.* and physics puzzles á la *HL2* (with added Ageia PhysX) and you can see the thinking behind *Alpha Prime*'s development.

You play a scavenger who goes looking for valuable scrap on abandoned worlds, but you don't expect the colony of robot miners who have gone totally nuts in a highly mechanised off-world facility. You can hack into much of the industrial equipment that characterises the facility, using the robots against themselves and the mining tools to solve the game's puzzles remotely.

When publishers shy away from innovative and forward thinking titles like *Armed Assault* it's no wonder studios start looking to the mainstream when developing a new game. *Alpha Prime* has an accessible concept that may not be breaking any new ground, but it's certainly pressing the right action buttons.

In *Alpha Prime* you you hack robots, turning them against each other.

Do miners really need guns…

…or rocket launchers? What kind of pit is this?

Armed Assault
Rewarding veterans, welcoming recruits

IDEA STUDIO Bohemia Interactive Studios
WEB www.bistudio.com

HDR, reworked physics and an all new multiplayer. *OFP* becomes *ArmA*.

Armed Assault is part of Bohemia Interactive's on-going quest to simulate a warzone as closely as possible while still keeping things fun. It's true to say that this is a development of *OFP*, but the avenues it opens up for the dedicated *OFP* mod community are unlimited. Foremost among the new feature set is the streaming terrain engine. Rather than cache entire islands, *ArmA* loads sections of terrain on the fly. This means that playing areas can now be as large as modders care to make them. The new official island is over 400Km² – far larger than all four islands from *OFP* combined. Next come improved physics and collision detection. *PCF*s hands-on test reassured us that all the clipping errors from *OFP* have vanished. That new feeling of solidity is also partly due to the DX9 features lavished on *ArmA*. Specular lighting, and bump and normal mapping all add new depth to objects and terrain. It's hard to tell from these shots (the build they are taken from has some lighting issues) but we've seen objects casting dynamic shadows onto other models and HDR lighting effects, all of which enhance the gameworld enormously. The inclusion of Join In Progress for multiplayer has allowed BIS to adopt a favourite mod of the

Game 2
The unnamed soldier

IDEA STUDIO Bohemia Interactive Studios
WEB www.bistudio.com
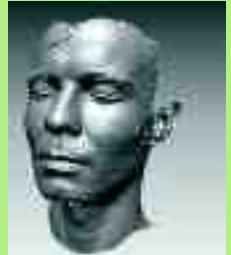
Game 2 uses an entirely new engine, co-developed with VBS2 military software.

PCFormat's own Carey will be in *Game 2*. FACT!

The Styker. Makes a change from an M113…

Had it not been for Bohemia's split from Codemasters (which retains the IP), this would have been *OFP2*: a true sequel as opposed to the 'engine update' of *Armed Assault*. *Game 2* remains unnamed, but its reputation is growing. Like *OFP*, it's a soldier sim, not a military shooter in the style of *Battlefield 2*. BIS' design philosophy boils down to one question: What's it like to be a soldier? *Game 2* is going to extremes to find out.

"Being a soldier is not about just using force." Marek Španel explains. "Dealing with people is important too." *Game 2* is still a wargame, gunplay and tanks galore, but now things are more complex. The dynamic radio system that let AI report events without scripting in *OFP* has morphed into a system that allows you to have a meaningful chat with any AI. Talking to an AI soldier at Bohemia's studio, *PCF* witnessed something greater than the conversation tree we were expecting. For example, an AI soldier may randomly have something in his inventory, like a letter from his girlfriend. He may try to show it to you, and talk about it. Refuse, and you risk demoralising him. On the other hand, he could also have chosen to show the letter to another AI, and the same conversation could have happened between *them*, all dynamically.

But dynamic dialogue is tricky, and by its very nature, is made of fragments. "We're trying out syllables, bits of words, to see what works best." Marek winces, complaining that it's hard to watch a publisher listening to the fractured speech. "And many things in the game are random like this," he continues. "For example, you may capture a guy and he won't talk to you because you're just a soldier. But you can take him back to a camp and have him interrogated," Bart Van Passan, one of the designers at BIS, chips in: "Two hours later, your side might know the location of an enemy base, because you took that guy back to the camp." *PCF* points out that this kind of random mission structure is insanely ambitious. "Yes!" Marek concurs, eyes widening to say "of course it's ambitious! Why make games if not to be ambitious?"

One of the core strengths of *OFP* was the fact that it was easily modded. The community has been spewing out add-ons for *Flashpoint*

"The new island is over 400 square kilometres, four times that of OFP"

VIKTOR BOCAN Project Manager, Armed Assault

OFP community, namely *Conquer The Island*. Until now, these massive RTS-style games (players build tank factories and so on before fighting for control of the entire 25Km^2 islands) forced players to commit three or four hours to a single game. BIS have now included an official version of *CTI* into *ArmA*'s multiplayer that will allow fans to create persistent *CTI* servers players can join and leave at will.

The new singleplayer campaign is fully coop compatible too, allowing friends to play through the new story together. A country is divided into a communist state and a pro-western province. The US-aided South gets invaded and this provides the new setting. If you can't find a buddy to help you through a tough mission you can now swap between controllable characters mid-mission, temporarily relinquishing control of your soldier to the awesome new AI, and taking over another body elsewhere on the field, for example a sniper overlooking a town your previous character is about to assault.

All this comes at no expense to the tried and tested *OFP* experience the hardcore fans have loved and played for the past five years, but instead opens up a staggering amount of potential that will keep the community going for the next five. It's making the game a great deal more accessible to new players without removing anything that the dedicated followers care about. *Armed Assault* will breathe new life into the established *OFP* world, both with its wealth of new features and the massive influx of new players it's bound to attract.

No more bland ground textures.

Street battles now play a bigger part.

ArmA has far higher object counts.

for five years, and BIS recognises the role that played in *OFP*'s success. BIS is paying attention to the way add-ons and mission-making are handled in *Game 2*. Unlike *OFP*, *Game 2*'s mission editor can be used in 3D, so modders can playtest their missions instantly. There's also a feature BIS calls The Library. All content in *Game 2* is an add-on, whether it came with the game officially or not. The Library keeps track of add-ons in the mission editor, listing additional data such as vehicle speed and armour values, so designing a mission becomes easier to balance.

Game 2 shares its core engine with BIS's *Virtual Battlefield System 2*, the follow-up to the training program used by the United States military. So soldiers suffer from encumberence; models are detailed down to the individual engine notes of vehicles (BIS popped the hood of a Hummer to show us, and briefly we felt like real men), and the AI is already unbelievable: NPCs intelligently search for high vantage points during combat, changing their tactics if backed up by armour. *Game 2* is already the ultimate warzone sim, and BIS has two years development left. **PCF**

"Of course it's ambitious! Why make games if not to be ambitious?"

MAREK ŠPANEL Managing Director, visionary BIS co-founder.

Real world physics mean *Game 2* interiors can be explored on foot.

All flora is generated procedurally with BIS' own rival to Speedtree.

THE MORAL MAZE

What is 'immoral' PC use?
Mike Abolins hides his Bittorrent windows and finds out

ARISTOTLE

Famous Greek philosopher Socrates claimed that no-one knowingly commits a wrong deed; that we are motivated to do good, but our actions may be perceived as bad or – more importantly – illegal by others. So it may come as some surprise to find out that common computing tasks that you carry out each day are considered ethically dubious or are prohibited by law somewhere. Here's 25 of the hottest topics for debate…

Can I safely download copyright material?
Only with permission, eg. when you open a website into your internet browser – someone else created those words. Though you download the stories at www.reuters.com into your browser, for example, you can't copy them to your own site or newspaper and pass them off as your own. The bad news is that if an artist hasn't given you permission to download their song, and do it anyway, you're in breach of copyright. **ILLEGAL!**
MORAL RATING
52% wrong

What about uploading copyright material?
Again, you can only redistribute copyrighted material if you have express permission to do so. This is where the majority of file-sharers get caught out: while illegally downloading music via a P2P network is criminal, it's uploading the same music that's more easily convictable, whether you're making money from it or not. **ILLEGAL!**
MORAL RATING
73% wrong

Is it illegal to sample music and create mash-ups?*
This falls under the same copyright laws addressed above; you can't alter a person's work without their permission.

THE MORAL RATING

We asked members of the *PCFormat* forums to vote with their gut instinct as to whether each activity was 'right' or 'wrong.' This symbol shows the poll results
wrong   right

* The Jay-Z acapella tracks from the rapper's Black Album, on the other hand, were freely distributed with early copies of the album with express, written permission for the buyer to use them in remixes, a genre of music occasionally referred to as 'bastard pop'.

While you're generally allowed to sample a record for personal use, you'll need to get clearance before distributing it as your own work or making money from it. EMI issued DJ Danger Mouse with a cease and desist order following his infamous and critically acclaimed Jay-Z vs.The Beatles project, *The Grey Album*, despite the fact that Danger Mouse only made a limited number of copies on CD-Rs for a few of his friends and didn't receive any money for it. **ILLEGAL!**
MORAL RATING
88% right

I suppose reverse engineering software's out of the question?
Although the law surrounding copyright in regards to computer programming is quite different to that governing other types of material, unless you have permission from the program's author, you can't touch it. Obvious exceptions are open source programs, though the original author may request that you notify him or her beforehand. **ILLEGAL!**
MORAL RATING
51% wrong

Can I rip CDs to my hard drive?
Strictly speaking, making a copy of anything you don't own the copyright to is illegal. Making compilation tapes or CDs from music you've purchased legally falls under this umbrella, as does making straight copies and keeping the original somewhere safe where it's not going to be damaged or lost. But as long as the copy is for your personal use only, the powers that be are prepared to turn a blind eye and have yet to prosecute anyone in the UK. **ILLEGAL!**
MORAL RATING
91% right

Ethically speaking there's no debate – of course this should be legal. But the letter of the law disagrees.

PLATO

SOCRATES

PYTHAGORAS

QUAKE 4

What do you use your PC for? Are you sure it's ethically sound? Find out here.

Yes, well, at least they can't get me for cutting and pasting that bit of HTML I really liked…

Ah… web page source code is copyrighted material and, as such, means that whoever created it is the copyright holder. If you copy their code and use it in your own site without their express permission, you are, in fact, breaking the law. **ILLEGAL!**

MORAL RATING

58% right

Is online plagiarism as big a no-no as plagiarising a book or magazine?

Oh yes. It's harder to prove who was the original author of the work, but you must credit the author. If you want to sue an author, remember: you must remember, it's the work that's expressing an idea, not the idea itself, that's covered by copyright – that's covered by a different set of laws. **ILLEGAL!**

MORAL RATING

80% wrong

What do you agree to in an EULA?

What, indeed – grit your teeth and read through any EULA (End User License Agreement) and you'll be amazed at some of the terms you're agreeing to. Some classics of the genre include *Pinnacle Studio 9*'s "You acknowledge and agree that in order to protect the integrity of certain third-party content, Pinnacle and/or its licensors may provide software security-related updates that will be automatically downloaded and installed on your computer. Such security-related updates may impair the software (and any other software on your computer which specifically depends on the Software) including disabling your ability to copy and/or play 'secure' content, i.e. content protected by digital rights management." Which, basically, gives Pinnacle the right to update *Studio* 9 on your PC without your consent and that by doing so, they're free to hobble it or other programs on your PC. Check out www.eff.org/wp/eula.php for more. **LEGAL!**

MORAL RATING

51% wrong

Try to wade through all the small print before you click agree – occasionally these evil works have been upheld in courts of law.

Is it acceptable to use the K-Lite Codec Pack?

Downloading a package that features all of the media codecs under the sun and enables you to run each and every one through *mplayer2* is a great time and moneysaver. Of course, it's also illegal; the codecs included in the K-Lite Codec Pack have (allegedly) been reverse-engineered and KL Software doesn't distribute files – it leaves that to mirror sites and P2P networks. **ILLEGAL!**

MORAL RATING
87% right

Can I install my copy of Windows XP on more than one PC?

Nope. Shell out £80 for the upgrade version or £180 for the 'new PC' version of Windows XP Home Edition and you only get the one license. Which means that you can only install that copy of Windows on one PC; install that copy of Windows XP on a second PC and you must uninstall it from the first. **ILLEGAL!**

MORAL RATING
65% right

Can I use a TV tuner card without a TV licence?

A TV licence "provides a legal permission to install or use a television receiver in order to receive television programme services", according to the BBC, which is responsible for licence administration. And the definition of a receiver "includes a television set, a VCR, a set-top box, a TV-enabled personal computer or any other equipment designed or modified to enable it to receive television programmes." So watch TV on your PC

MAD BUT TRUE
If you have got a license, there's still need for caution: while a laptop with a TV tuner is covered when you use it in your home or outside on battery power, as soon as you plug it into the mains away from your home and watch TV on it, you will legally be required to pay for a second licence.

I'm using my neighbour's wireless network for broadband. Is this against the law?

Provided you've got agreement to permission to use the connection - maybe you're sharing your flatmate's or a next door neighbour's and splitting the costs – we'll take a lenient view on this. But the ISP in question won't be happy, and the person who's connection you're using will have signed an agreement to share the connection only with members of their household. So you're potentially putting the account holder in an iffy position. But what the ISP doesn't know about, it can't complain about, right? **ILLEGAL!**

MORAL RATING
60% wrong

Even if you have permission, it may be against the law.

"Copyright remains in place for 70 years from the end of the year that a program was first made available"

without a licence and you're breaking the law, we're afraid. **ILLEGAL!**

MORAL RATING
83% wrong

Is recording TV transmissions to my PC legal?

Recording a programme broadcast on TV doesn't fall under the same conditions as there's a provision in UK copyright law called 'time-shifting', where copying a broadcast for viewing at a more convenient time is allowed. **LEGAL!**

MORAL RATING
90% right

Can I be rude to someone in an email?

One in eight people have received an offensive email in the last 12 months, according to official Home Office figures, and one in 11 people have received similar messages via SMS or voicemail. Such harassment is illegal under the 1997 Protection From Harassment Act, and is sufficient grounds for six months in jail or a £5,000 fine – and civil proceedings to compensate for any emotional anxiety caused. **ILLEGAL!**

MORAL RATING
94% wrong

Don't tell me spoofing my IP address is wrong...

Well, no, not really, but it's also not really as handy as it's made out to be. By spoofing your IP address you're providing the computers you're sending data to with an incorrect address to reply to, so it's really useful only for one-way traffic, such as anonymous emailing; proxy servers are designed to allow two-way communication, but will also slow noticeably things down. **LEGAL!**

MORAL RATING
57% right

Am I legally allowed to use the internet to shop for cheap goods abroad?

As long as you pay any necessary import VAT or customs duty on the goods, absolutely. You'll pay VAT on anything bought from an overseas retailer that costs over £18 and that you'd pay VAT on in the UK. So that includes CDs, DVDs, electronic goods and the like. You can also be held responsible for customs duty on any goods bought outside the EU, when the amount of duty exceeds £7. Customs duty is usually worked out as percentage of the value of the goods being imported and varies according to the type of goods, too.

If you buy from a retailer that specifically promises to mis-describe or under-value the goods you're buying in an effort to save you paying VAT and customs duty, you can be held responsible for being involved and can be prosecuted. **LEGAL!**

MORAL RATING
99% wrong

It's allowed, as long as you pay the correct duties.

Can an MMORPG ban me because of my sexual orientation?

"Advertising sexual orientation is not appropriate for the high fantasy setting of the *World of Warcraft* and is therefore not permitted." That was Blizzard's warning to Sara Andrews, caught promoting a gay-friendly guild. "It's an absolute outrage and I simply will not tolerate it without a fight!" said Sara. Blizzard was rightly shamed, and the organisation quickly backtracked and apologised to Sara, whose guild continues to thrive. **ILLEGAL!**

MORAL RATING
56% wrong

"You must have a photographer's express permission to use their work on your personal website"

Can, erm, my friend really import a Russian bride?

Apparently, some of **www.russianladies.com**'s clientele are described as being "barely [able] to communicate without an interpreter but not over the telephone", but there's nothing legal to stop you from finding love online, whatever your intended's nationality.

The United States Congress is considering a bill that'll require any man searching for a foreign bride through an American site to undergo a full background check, however, after a Russian woman was murdered by her American husband in 2000. **LEGAL!**

MORAL RATING
66% wrong

Encrypting my email isn't illegal, is it?

By encrypting your files and emails you are protecting them from prying eyes, but in the US there's confusion as to whether or not the state should have access to all keys. The EU takes a more liberal view, stating in official reports that "privacy considerations suggest not to limit the use of cryptography as a means to ensure data security and confidentiality." **LEGAL!**

MORAL RATING
96% right

Abandonware's OK, isn't it?

Websites like **www.theunderdogs.org** and **www.abandonwarering.com** offer games for download that were published by companies long since defunct or that are over five years old and no longer supported. But the availability of a game or program has no legal bearing on it's copyright status; in UK law, specifically the 1992 Copyright (Computer Programs) Regulations, copyright remains in place for 70 years from the end of the year that the program was first made available to the public. **ILLEGAL!**

MORAL RATING
95% right

Are CD cracks and patches actually illegal?

According to UK copyright law, you are allowed to copy a program for the purpose of creating a personal backup, a condition that allows sites like **www.gamecopyworld.com** to continue operating; by not providing CD keys, it's able to offer the fixed images and files required to run a game without a CD, but only after it's been installed from a legitimate copy first. ISO mounting apps,

however, have had to be withdrawn, as they "allow the circumvention of certain copy protections". **LEGAL**

MORAL RATING
72% right

What about ISOs?

Programs like *Daemon Tools*, which enable you to mount ISO images saved on your hard drive as if they were physical CDs, have been around for years but it's only recently that they've fallen foul of the law. Originally intended for legitimate workplace use, allowing IT managers to distribute multi-license software between workstations without requiring a CD for each one, they've more recently been adopted by people downloading copied ISOs of games and applications via file sharing networks. **ILLEGAL!**

MORAL RATING
57% right

Can I use other people's photos on my website?

You must have the photographer's express permission to use their work on your personal website and, if they request it, you must credit the photograph to them as well. Failure to do so means you are technically infringing on the photographer's copyright, and they can sue. **ILLEGAL!**

MORAL RATING
73% wrong

If I'm ordained online, can I marry people?

Unless you're a member of the Universal Life Church (**www.ulc.org**), which has actually gone to court in America to achieve official recognition over there, no you're not. Even if you are an ordained member of the ULC, New York City will still refuse to recognise you. **ILLEGAL!**

MORAL RATING
85% wrong

Are sites that post guitar tabs and song lyrics technically illegal?

Welcome to 2006's hot music-related topic. This time it's the US Music Publisher's Association that's getting busy, taking sites that post unauthorised guitar tabs and song lyrics to court for breach of copyright. Even if the composer is credited on the site, unless the site owner has the specific permission of the composer to reproduce the lyrics and/or tabs, it's not allowed. **ILLEGAL!**

MORAL RATING
93% wrong

Can I be sued for libel in a forum post?

Nope, but the forum host can. An article in the *Sunday Herald* newspaper had asked readers to discuss the classifying of documents relating to the investigation of the Dunblane shootings, and one reader posted comments about former NATO secretary-general George Robertson that contained unproven allegations.

Robertson spotted the allegations and sued the newspaper, winning undisclosed damages. **LEGAL!**

MORAL RATING
69% wrong

5 WAYS TO PROTECT YOURSELF

If you're paranoid, and want to stay clear of 'the Man', try installing one of these useful utilities and programs

PeerGuardian
phoenixlabs.org/pg2
Sitting on your PC in addition to your firewall, PG blocks IP addresses known to belong to organisations that are opposed to P2P networks and file sharing in general, such as the RIAA, governmental departments and data tracker servers.

Tor
tor.eff.org
When you're surfing the net, your tracks can be visible to people who want to know where you've been and when. Tor enables you to avoid that problem by routing your communications through onion servers and concealing your real IP address.

Digital File Check
bpi.co.uk
Hosted by the British Phonographic Institute, this little app will scan your PC for file-sharing programs and provides an overview of the files and media that you're making available for sharing with others. Useful for checking your kids' PCs...

Hushmail
www.hushmail.com
A free webmail service, with a difference, your correspondence is encrypted, protecting it from being read or monitored by anyone but the recipient. Upgrades are available to integrate it with Outlook or Thunderbird, as well as your own domain.

Simple File Shredder
www.scar5.com
Wipe incriminating files permanently with this app. Deleting files normally in Windows means that they're just tagged as being available for over-writing, rather than being wiped, leaving them open for potential retrieval later on.

PCFormat
reviews
All the latest games, gear and apps

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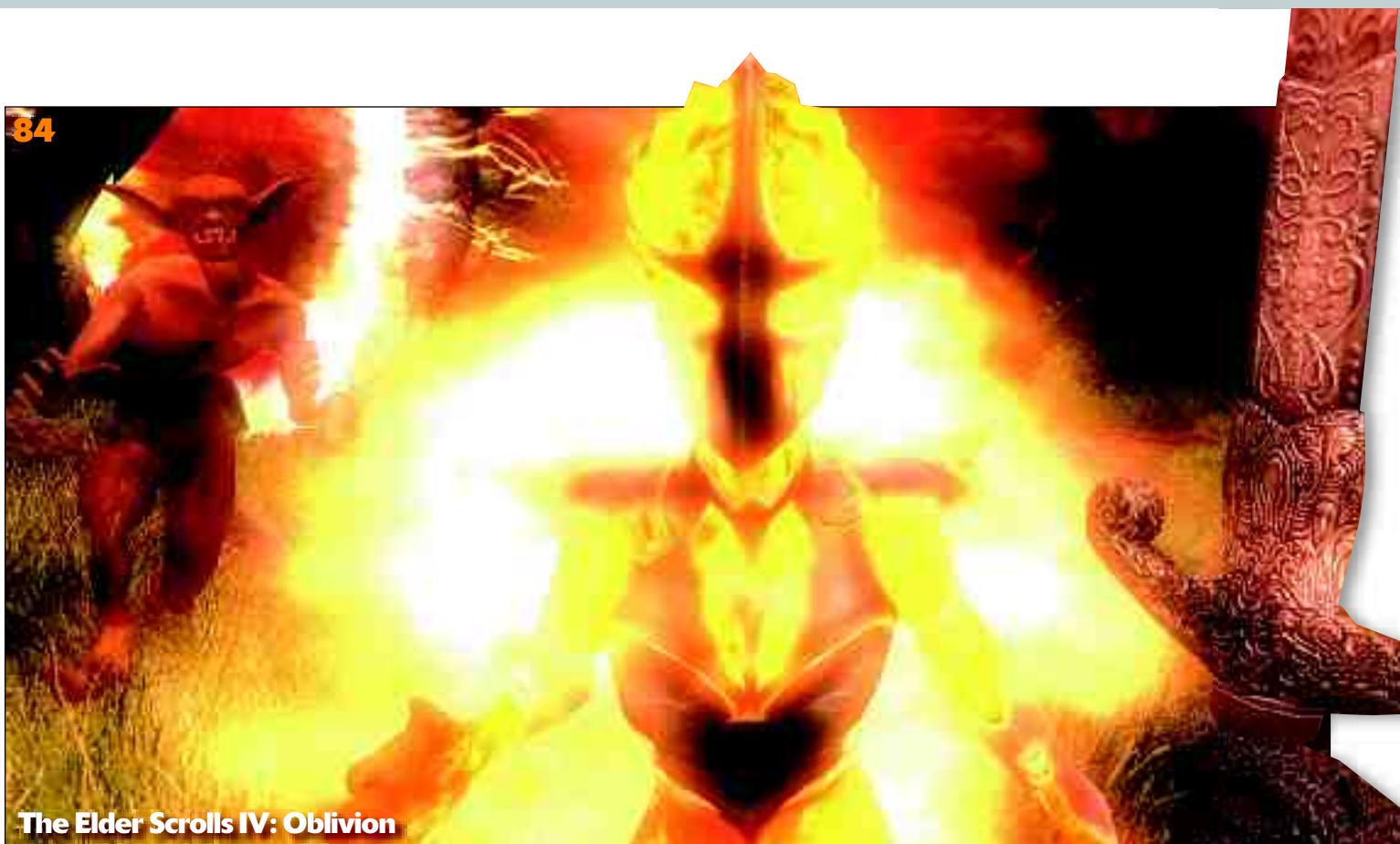
The Elder Scrolls IV: Oblivion

Our scoring system

0-19% Unusable or astoundingly rubbish
20-49% Largely not worth spending money on
50-69% Some decent features but uninspiring
70-79% Accomplished without the must-have factor
80-89% Outstanding. Awarded Top Gear or High Score
90+ Exceptional. A *PCFormat* Gold Award winner

Our key promises

1. PCF has the most thorough reviews
We've been reviewing kit and games for 14 years. With over 8,500 reviews written, we have the most talented, dedicated and authoritative teams in the business.

2. Integrity is paramount
We never trade pages for exclusives, or review games not signed off as finished by the publisher. Where we've looked at reference hardware, we'll make that clear in the review.

3. The PCFormat Gold Award
Only when a piece of equipment or game exceeds our expectations in terms of innovation, excellence and value for money does it get one of these coveted honours.

4. High Score/Top Gear
It's a misconception that only 90%+ is an essential purchase. Anything scoring 80% or higher is festooned with one of these, making it one of the month's most highly recommended.

5. We want to know what you think
We are PC fans writing for PC fans, so please share your thoughts on new stuff in our forum: **http://forum.pcformat.co.uk**

gold PCFormat

high score PCFormat

top gear PCFormat

60

High-def projectors

PCFormat Experts

KIERON GILLEN
PCF's resident wheeler-dealer sighed whimsically at the memory of the *Tycoon* series this month, on page 142.

MOST WANTED
A business empire

JOHN WALKER
Had a fairly busy month looking out for the little people, as you can see from the indignation writ large over page 32.

MOST WANTED
Call of Cthulu

JON HICKS
Lara fell into Jonty's grateful arms this month. Read his musings on the return of the digital damsel on p92.

MOST WANTED
Oblivion

MIKE CHANNELL
The Samsung M70 laptop was snapped in half by our eager staffer this month. Check out the results over on page 67.

MOST WANTED
GTR 2

JIM ROSSIGNOL
Space cowboy Jim's latest illuminating missive from the future of technology can be found over on page 30.

MOST WANTED
Windows Vista

MIKE ABOLINS
Legal eagle Mike blew the lid off the moral implications of 'acquiring' Russian brides online, among other things, on p50

MOST WANTED
A good lawyer

THIS MONTH

56
Intel Conroe
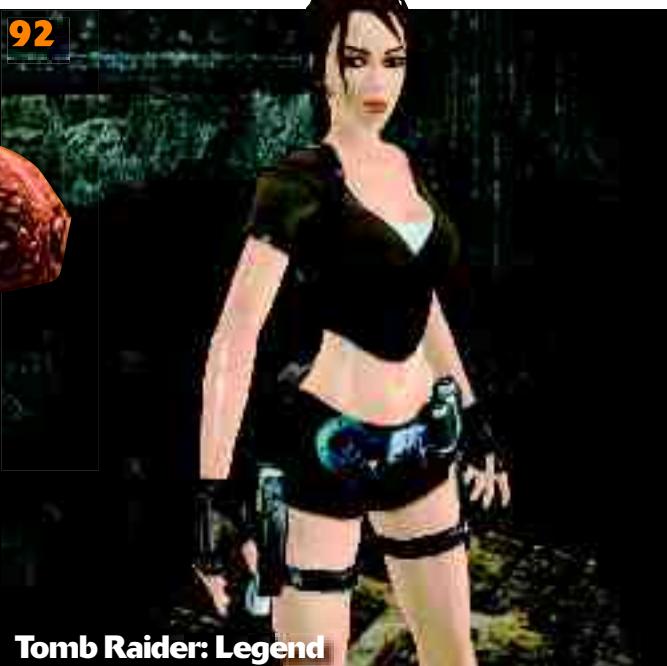
92
Tomb Raider: Legend

67
Samsung M70

71
Sparkle 7900GTX
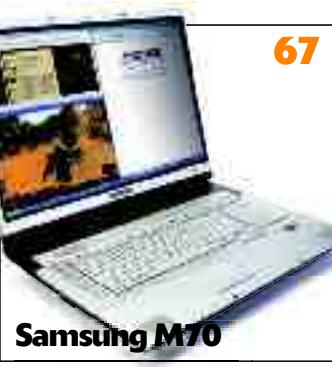
›› WLAN RADIO
Gather round the wireless

Say piffle and poppycock to the limitations of traditional radio bandwidth and instead choose from one of the thousands of internet radio stations available. Whether you prefer the stalwart BBC Radio stations or the laid back sounds of Kool FM (direct from Mauritius, of course), a quick twiddle of the knob will stream beautiful music with nary a PC in sight.

66

›› 2.1 SPEAKER SET TEST
Touching bass

74

Surround sound is all well and good, but some of us don't wish to hang tiny satellite speakers from every available light fitting. If you manage to get your hands on a decent 2.1 speaker set (that's stereo speakers plus a subwoofer for the audiophobes out there), the level of immersion and sound quality can be very satisfying. We've put the best on test.

›› CALL OF CTHULU
The horror, the horror…

91

If you're tired of being a generic game ruffian, perhaps *Cthulu* is for you. Instead of starting as a pistol-packing hard nut, you are dropped into the terrifying town of Innsmouth with little more than your bare hands and a heady dose of adrenaline. Genuine creeping terror is the name of the game here, so be prepared for a severe dose of the willies.

›› THE GODFATHER
It's a family affair

95

Don a cap and cap a Don in this Mafia spectacular. The production values are, predictably, through the roof and we find the idea of running protection rackets strangely appealing. Will the gameplay live up to the iconic films, though, or will even the silicon resurrection of Marlon Brando be insufficient to save it from the *GTA* Clone Doldrums?

PLUS

"Conroe is designed to increase clock-for-clock processor performance to ludicrous levels"

Intel Core Microarchitecture

Do not adjust your monitors. Intel's new Core architecture is so fast, you won't believe your eyes. PCF got to run the first ever benchmarks

Price £TBA **Manufacturer** Intel **Web** www.intel.co.uk

Conroe is the name. Pistol-whipping Athlon 64s into burger meat is the game. That's right folks, after a miserable 18 months for the world's largest chip maker, Intel is back in business. It has a brand new, clean sheet processor design. And it means to do AMD serious harm.

Of course, if you followed events during the spring instalment of the Intel Developer Forum you'll know Intel not only dished the deets on its killer new desktop processor, codenamed Conroe. In an entirely unprecedented move, it also provided an overclocked AMD Athlon 64 FX-60 rig running at 2.8GHz and allowed journalists to run comparative benchmarks with a Conroe system running at 2.66GHz. Well, *PCF* was there at IDF. We saw the incredible benchmark results spewed out by Conroe. But unlike every other magazine and website, so far, we've got something extra. We've managed to get further access to a Conroe chip to run our own tests. Tests that Intel wouldn't allow anyone to run at IDF.

So, here's the skinny. Conroe is nothing less than the most exciting PC processor in living memory. It promises to be by far the fastest CPU ever for single and multi-threaded software of all kinds, including multimedia playback and encoding, productivity applications, and perhaps most importantly given Intel's dodgy track record in this area, for gaming, too. Even more incredibly, Conroe pumps out this massive performance while running at reduced clock speeds compared with existing Pentium D desktop CPUs and, according to Intel's claims, using fully 40% less power.

CHIPS CHALLENGED

All of which begs three questions. How on earth has Intel pulled off this stunning turn around? Can Conroe really be that good? (Lest ye forget, Intel originally said the Prescott-era Pentium 4 would hit 5GHz or more – that chip went supernova at just 3.8GHz.) And if it is, does AMD stand a noob's chance at Quakecon of competing with this renewed onslaught from Intel? For the low down on the latter, check out the boxout (on page 58). For everything else, sit back and enjoy *PCF*'s chronicles of Conroe.

Designed by the very same Israeli chip engineers responsible for Intel's rapturously received Pentium M and Core Duo mobile CPUs, Conroe is the first example of an all new x86 CPU architecture known simply as Core. Variations of Core will replace every single product in Intel's PC processor line up, including laptop, desktop, workstation and server chips. In fact, the only CPU that will survive the Core revolution is the heavy-iron Itanium chip. But what makes Core special? Intel claims it combines the strengths of the soon-to-be-defunct Pentium 4 Netburst desktop family and the Pentium M and Core Duo mobile chips with a number of unique innovations and enhancements.

The basic recipe includes a high-clocking quad-pumped CPU bus, huge SSE performance and 64-bit data handling from Netburst, massively reduced power consumption and monster integer performance à la Pentium M, fancy shared cache

HOW WE TESTED
Electronics and espionage

This is not your typical Intel technology preview. Historically, the world's largest chip maker has scarcely acknowledged the existence of AMD. But since the launch of the Athlon 64 CPU, AMD has morphed from an annoying but inconsequential lapdog, snapping at Intel's heels, to an altogether bigger and scarier beast. And that's why Intel was so keen to demonstrate exactly what Conroe is capable of. But *PCF* hasn't just relied upon the same Conroe benchmark demonstration that world-and-its-dog was treated to at IDF. We also managed to bag exclusive access to another Conroe chip. But here's the cloak and dagger bit. We can't tell you the how, when and wherefore of our secret Conroe escapade, nor can we publish precise benchmark figures. But what we can do is pass on our detailed impressions of how this awesome new processor performs.

memory technology from Core Duo and three key architectural innovations that are designed to increase clock-for-clock processor performance to frankly ludicrous levels.

Numero uno is what is known in Intel parlance as Dynamic Wide Execution. In pure geek speak, Intel has increased the number of instructions that Core CPUs can fetch, decode, execute and retire in a single clock cycle from three for both Netburst and Pentium M/Core Duo to four throughout the entire pipeline. More instructions per cycle means more performance at any clockspeed. Also part of Dynamic Wide Execution is Intel's new instruction macrofusion. This allows certain common instruction pairs to be fused into a single micro-operation, effectively providing Core CPUs with even more instruction handling width per cycle.

CYCLE TO WORK

The next key enhancement is Advanced Digital Media Boost. The headline factoid here is the ability to execute all 128-bit SSE instructions in a single clock cycle. Previous Intel SSE execution units broke instructions down into a pair of 64-bit operations requiring two cycles to execute. The

"Whether it's floating point SSE or number crunching, everything suggests Conroe will be a killer chip"

implications of Advanced Digital Media boost are borderline mind blowing – the 2.66GHz Conroe shown at IDF has the effective SSE performance of a 5.3GHz Pentium D dual-core processor.

The final piece of Conroe's low-clocking, high performance puzzle is a new 14-stage instruction pipeline. That's a massive reduction from the
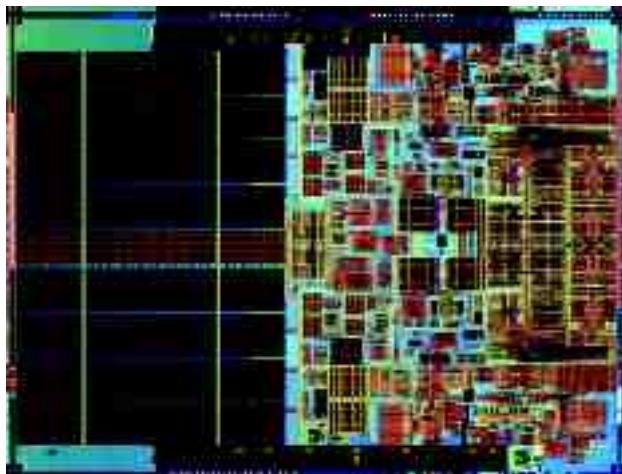
Here it is – a die shot of Intel's Conroe chip in all its glory.

AM2 to the rescue
Can the Athlon 64's new socket save the day?

AMD's Athlon 64 CPU is the man. And Intel's all new Core microarchitecture is going to stick it to him. Right? At first glance, you'd be forgiven for thinking it's lights out for AMD. After all, a 2.66GHz Conroe is more than a match for an overclocked Athlon 64 FX-60. And it's very likely that Conroe Extreme Edition chips will hit well over 3GHz at launch.

But by the time Conroe appears, around late summer or early autumn, AMD will have moved its game on. Key developments will include the switch to a new socket, known as AM2, and a respin of the current 90nm Athlon 64 family. Notably, that means a new memory controller and support for DDR2 memory at frequencies of up to 800MHz. What's more, that new memory controller will be more power efficient, which along with other detail improvements, should

allow both single and dual-core variants of the Athlon 64 to hit higher clockspeeds. But will they be high enough? In a word, no. According to the latest leaked AMD roadmaps, the dual-core Athlon will be stuck on 2.8GHz when Conroe appears. Making matters worse, it's extremely unlikely that support for DDR2 memory will add more than five to 10 per cent extra performance, on a clock-for-clock basis. After all, the Athlon 64's memory subsystem is already extremely efficient.

However, AMD's biggest problem is manufacturing technology. Intel has been pumping out 65nm chip since late last year. But AMD isn't expected to start volume 65nm deliveries until some time in the first half of 2007. Don't expect to see Athlon 64s at a Conroe-competitive 3GHz or more until then.

31-stage Netburst pipeline and significantly reduces the hit of flushing the pipeline following a mispredicted branch execution.

Among a raft of other detail improvements is a second gen iteration of the shared L2 cache memory pool first seen on Core Duo but increased to a plump 4MB for Conroe. This enables cache coherency queries to be handled on-chip, which in turn means less traffic over the CPU bus, and less hanging around for data to arrive and more raw performance. What's more, along with Conroe's lower and more power efficient clockspeeds and Intel's 65nm manufacturing technology, Conroe boasts sophisticated clock gating which enables idling sections of the core to be entirely switched off.

As for clockspeeds for both core and CPU bus, Intel won't say. However, *PCF* has it on very good authority that Chipzilla has been sampling system builders with rigs powered by 3.33GHz Conroe chips running on a 1,333MHz bus. Both of which are big increases over the already scarily fast 2.66GHz IDF preview system which sported a 1,066MHz bus. Conroe will likely launch in late August or early September in LGA775 socket format, will be paired with DDR2 memory frequencies up to 800MHz and will require a 965 or 975 chipset.

But whatever the precise clockspeeds, one thing's for sure. Conroe is going to completely revolutionise the way you view Intel's desktop processors. The IDF benchmarks indicated that a 2.6GHz Conroe has a performance advantage over a 2.8GHz dual-core Athlon 64 of

between 15 to 30 per cent in a range of apps including *F.E.A.R.* and *Quake IV* and both music and video encoding. We can also confirm, via both synthetic and real-world application testing, that the SSE performance lives up to Intel's claims. Whether it's floating point SSE or old school integer number crunching, everything suggests Conroe will be a killer chip.

With all that exciting news in mind, however, we'll end on a cautionary note. Our one great doubt regarding Core involves the retention of the rusty old northbridge-located CPU bus and memory controller. Compared with AMD's elegant on-chip Hypertransport I/O and controller, it's a distinctly clunky solution. And while we're confident Conroe has the grunt in dual-core configuration to make bus performance a moot point, we suspect the move to four cores with the Kentsfield version of Core architecture, due early 2007, could be compromised by bandwidth and latency problems. If Conroe delivers, that could be AMD's only hope. **Jeremy Laird**

Configuration	Dual-core, single die
Clockspeed	2.66GHz
Bus speed	1,066MHz
Instruction pipeline	14 stages
Process technology	65nm
TDP	65 Watts
Cache memory	4MB shared L2
Socket / packaging	LGA775
Memory support	DDR2 up to 800MHz

PCF says... "Intel is simply too big to continue to allow AMD to lead the way, so Core and Conroe should revolutionise PC performance with a combination of processing punch and power consumption parsimony."

Super-size me

Bring the cinema home with an HD-ready projector. Richard Stevenson tests the latest big screen stars…

The days when big-screen home entertainment meant a 32in widescreen TV have been and gone. Even if you have a 42" plasma hanging on the living room wall, you're not going to get the drama and scale of the cinema.

Logic dictates that the more of your peripheral vision that gets taken up by the picture, particularly in a dark room with no other visual distractions, the more immersed you are in the drama, excitement and blood-pumping action of, say, *Wallace and Gromit*.

Granted, Samsung do a ridiculous 108in plasma screen, but we're talking megabucks for that. The only real alternative for the movie afficionado is a high-def projector. Such things didn't really exist for the home five years ago, so their evolution from *PowerPoint* boardroom tools to hi-def entertainment devices has been something of a revolution. Resolution has jumped from 400 lines to at least 720 lines; colour temperatures are now well-balanced for video and brightness, and contrast and colour resolution have gone through the roof. In a fully darkened room, the image quality produced by even our mid-price projectors is close to that of a plasma TV – and of course you can have a much larger screen without any extra cost.

Most projectors don't work at their best until the screen size is at least 60in diagonal, and don't become unwatchable, assuming it's dark, until well over 20 or 30 feet. Perhaps the average UK home doesn't yet boast a football pitch-sized front room, but

another key advantage of modern projectors is that a dedicated screen is not essential. Such is the brightness and contrast ratio, most projectors will work perfectly well on a plain white wall – assuming you remove that picture of Great Aunt Maud first. In terms of screen inches and entertainment – not to mention sheer home cinema bang per buck – you just can't beat a projector.

PUSH THE BUTTON

The features count and aesthetic appeal of projectors have similarly evolved for the living room. You no longer have to sit an ugly black box on the coffee table in front of you, and every model here can flip the image 180 degrees, so the unit can be hung on the ceiling. All the models here come with full remote control and once set up, can pretty much be forgotten about.

On the downside, this high-speed development in projection technology tends to mean that today's models are going to be outclassed by less expensive ones tomorrow – making it tricky to judge when to jump on the projection bandwagon. Thankfully with a raft of HD-ready models now available, you can at least be sure that any of our contenders will see you into the HD era with dignity. With prices of HD-ready projectors now becoming affordable, there's never been a better time to go large with your home entertainment. And if your other half or bank manager take a little convincing, take them to the cinema and tell them that they can have this at home for less than the cost of a top-spec PC.

HOW WE TESTED
Watching films is hard work

Ably abetted by nothing but half a dozen DVDs, some HD trailers and an enormous sack of popcorn, we started our tests by meticulously checking over our five contenders for build quality, connectivity, and design aesthetics.

Each model was set up in the designated home cinema room, or lounge as it's also known, projecting onto a basic 2.4m diagonal screen with a reflectivity of 1.0 – 399 from office supplier Staples, in fact. Trust us, fancy screens are overrated – buy more DVDs with the money you'll save instead. We ran through the setup procedures of each in turn, noting its ease of operation, and balancing the picture as best match to a RGB colour card using the DVD Essentials test disc. Using both an upscaled 720p HD input from a DVD player and a WMV HD sampler fed from a PC, we then slaved away watching movies for days on end. We noted each models' main picture colour balance and brightness parameters, depth of field, black levels, granularity, motion-processing and overall integrity.

After days in a darkened room surrounded by high-def kit, our conclusions were drawn, heroes rewarded with and the duffers relentlessly ridiculed.

gold
PCFormat

Hitachi PJ-TX200 £1,400

Manufacturer Hitachi **Web** www.hitachidigitalmedia.com

95%

The design team at Hitachi seems to have been given free reign with the TX200. It has turned out something curvaceous, smooth and somewhat disconcerting. The huge eye-like lens tends to follow you around the room and the drab grey case is quite tricky to conceal.

Its heart is in the right place, however. There's an HD-ready LCD engine, all-glass optics and a rather nifty lens-shift feature. This allows you to alter the horizontal and vertical position of the image without moving the projector or distorting the picture mid-movie. This not only means that you can adjust the screen without resorting to piling books under the front of the unit, but also that in most cases you're not going to need picture-degrading keystone correction. The paper specification is outrageously good – but take it with a pinch of salt, as there's little industry standardisation.

The menus are comprehensive, but you're advised to keep the manual handy. However, the TX200 makes up for this with the quietest fan in this test, whispering along at just 24dB in Eco mode. Thankfully, impending paranoia about the projector's 'all-seeing eye' is quickly dispersed by a drop-dead gorgeous picture. Contrast is absolutely stunning, with super-dark blacks and plenty of shadow detailing. Sharpness is spot-on, benefiting also from not having to use keystone, and the colours are as close to real as any sub-£2,000 projector has yet achieved. The iris control will only be useful for viewing in complete darkness, but it enhances the black levels and contrast still further, giving the picture unrivalled depth and realism.

Hi-def projectors

top gear PCFormat

BenQ PE7700 £1,500

Manufacturer BenQ **Web** www.benq.com

82%

You may not reckon BenQ as the biggest name in projectors, but it's certainly making waves with this gorgeous DLP model. Its neat case with silver trim is pure class, and the remote control has a backlight bright enough to find your popcorn in the darkest of home cinemas.

This machine uses a 1,280x720 DLP engine with a six-segment colour wheel, which makes it a bargain. The specs are good, if not quite equal to the better LCD models here. On the missing list is lens-shift, forcing you to use image-degrading keystone if you have to tilt the machine.

Our love-at-first sight affair with the BenQ soon hit a rocky patch, though. Our sample had an HDMI syncing issue, and

the fan is very noisy. There is every danger of small animals being sucked into the air intakes, and if the fan went mush quicker, it'd probably hit take-off velocity. You can tame this to an extent with the Eco mode and it quietens after five minutes of being on – although it's still noisiest in test.

Thankfully the picture does go a long way to make up for this foible with edge-definition and clarity that makes even our favourite LCD models look a little soft. Blacks are impressively deep, and whites will sear into the room, but greyscale and shadow detail are all but non-existent. Colours are super-rich and reds are so strong it almost makes you want to support Liverpool on a Saturday afternoon.

InFocus Screenplay 5000 £870

Manufacturer InFocus **Web** www.infocus.com

55%

The Screenplay is clearly a budget design – small, light and wrapped in a dubious plastic case. Thank goodness it'll spend most of its life in a darkened room. Inside is an LCD engine rather than Infocus' usual DLP technology, although the spec is 1,280x720 pixels in widescreen ratio. The on-paper performance figures are distinctly lacklustre, and features are rudimentary. The remote is pretty robust, and there's a decent selection of cables included though, so it's not all bad.

For reasons best known to Infocus, the 5000 uses a very unusual version of a DVI port called an M1 DV/A. Unlike traditional DVI, this connection carries an audio signal as well, but cables and adaptors with M1 plugs are very rare.

The supplied power lead is too short for ceiling mounting – and why you would want to have speakers in a projector is still beyond us too. However, there's a simple auto-setup system that adjusts picture parameters and keystone. The fan is on the noisy side, and the picture is pretty soft. Not just warm and fuzzy mind, but a fully honey-coated image with gentle golden hues, no less. Delving into the menus failed to remedy this problem. Increasing contrast simply turns blacks wishy-washy and, with an HD input, you are locked out of the colour menus anyway.

The Screenplay may be cheap, but that is no excuse for poor image quality. We'd advise against investing in it.

Toshiba TDP-MT700 £1,700

Manufacturer Toshiba **Web** www.toshiba.co.uk

76%

This Toshiba is positively antique in projector market terms (it's about a year old) but was well ahead of its time when it was originally released. The only things that have changed is that the original price of £3,000 has almost halved, and the competition has got a whole lot tougher. Even at £1,700, the spec sheet of this old timer only marginally improves on the Infocus 5000 – on paper at least.

Cosmetically, the MT700 is getting close to the sumptuous style of the BenQ, complete with white case and remote control, and the size and core technology is all but identical. The setup is neat and intuitive, again with built-in test screens the menus comprehensive, and there are enough useful picture tweaks on offer to keep you from actually watching a movie for weeks.

Just to underline how projectors have come on in the last 12 months, last year's Minitest winner, the MT700, is off the pace in 2006. The overall picture is good but there is nothing like the sumptuous natural colour of the Hitachi or the definition of the Panasonic models. The Toshiba's balance is a skewed towards red (an early DLP trait), and while the overall picture is a league above the Infocus, every key facet of the image falls shy of the performance of our top two contenders. You might be able to pick one up one of these old war horses on the cheap, but the Hitachi is a better bet.

Panasonic PTAE900E £1,500

Manufacturer Panasonic **Web** www.panasonic.co.uk

gold
PCFormat

93%

The PTAE900E is a rival to the Hitachi PJ-TX200, and competes head-on in performance, features, price and specification. Panasonic has eschewed curvy design in favour of a traditional silver box – and that may appeal to those not wishing to upset the domestic applecart.

It's also LCD-based, has similar brightness and an iris control, and claims comparable brightness and contrast levels to the Hitachi. The menus are not quite as complex, which is encouraging. The remote is intuitive, and the unit even has a lens-shift feature, but operating it involves man-handling the lens assembly rather than using thumbwheels. If, like the average *PCF* scribe, you're all thumbs, this means the focus can be lost when you shift the lens. Clawing those points back, the Panasonic has a SCART socket as well as the normal suite of connections including HDMI, which will be handy for impromptu use on a coffee table.

Better still, the picture is every bit as good as the Hitachi with a slightly cooler basic balance. Flesh tones are a little whiter and sharper, and although the balance is not quite as rosy as the Hitachi's, the contrast levels, clarity, motion and sheer visual impact are absolutely first-rate.

There's a hair's breadth between the Panasonic and the Hitachi for top honours. The minor point of the fiddly lens-shift nudges the PTAE900 into second place.

Conclusion

Which projector did we plump for?

With the exception of Infocus' Screenplay 5000, LCD is clearly the way to go for affordable HD projectors. The results of five sittings of *The Goblet of Fire* and *Curse of the Were-Rabbit* proved that beer-budget HD projection is still not possible below about £1,400 – even if for a specialist projector manufacturer like Infocus. The Screenplay 5000 has little going for it in any respect and the money would be better spent on few years' season tickets to the local multiscreen cinema.

Slipping down the rankings into fourth place, Toshiba's MT700 DLP model is simply too long in the tooth to cut it, and disappoints at its premium price tag. It does have some merits of smoothness and subtlety over the good-looking BenQ model, but the PE7700 is so sharp and colourful it takes your breath away. The BenQ is a little too much of a one-trick wonder for a wholesale recommendation – unless of course your entire DVD collection consists of Pixar titles.

Both the Panasonic PTAE900E and Hitachi's PJ-TX200 come heartily recommended and both offer a fine picture, great features and excellent value for money. The differences in operation and picture quality are subtle – the Panasonic being slightly crisper and cooler, compared to the Hiatchi's warmth. Both will deliver spectacular hi-def performance – even scaling your humble old DVD player to their 720p resolution.

In a competition that remained a neck-and-neck sprint until the final furlong, the final decision is a very difficult one, and personal preference played a part. Frankly, Hitachi's all-seeing eye has become a comforting feature in the home cinema room, and its funky curved case and better lens-shift operation nudges out the Panasonic to bag first place.

> ## "If you want a projector on a budget, go for LCD"

DLP vs LCD
Projection technologies vie for supremacy

Generally speaking, in the sub-£2,000 price bracket, LCD models tend to have more natural colour, subtlety and stability, while DLP models tend to be crisper and have more colour saturation. Conversely LCD tends to be softer, and can suffer noticeable pixelation, whereas the colour wheel of DLP can cause rainbow-effect colour breakup in fast-moving images. You pays your money, you takes your choice.

In our test, LCD units came in first and second place, and the reason is simple economics. LCD tech has been around for ages and is well developed by hundreds of different firms. The lower component cost means more money is spent on features like lens shift.

DLP is a bespoke licence of Texas Instruments, using a tiny chip with millions of tilting mirrors called a DMD, or Digital Micromirror Device. Projector manufacturers can only buy DMDs from TI, raising the cost and reducing funds available for the projector's fancy bits.

The role tends to reverse once you reach the exalted upper echelons of the HD-R projector market, and encounter world-beating machines that retail at £3,000 plus, and at this price, DLP is a better technology than LCD. The higher retail price means makers can buy in TI DMDs, implement high quality video processing-engines and use higher-quality optics.

Commercial cinemas are moving towards digital film distribution, and the machines replacing old rickety old film projectors are all DLP-based. These use three DMD chips at a resolution of 1,920x1,080, and a lamp so powerful it wouldn't disgrace a lighthouse.

Both Marantz and Sim2 have recently launched three-chip DLP projectors for home use, albeit it at 1,280x720p resolution, and they are simply incredible to watch. On the down side, they're over £10,000 each, so are currently beyond 99% of the population's financial reach.

As our test concludes, if you want a great HD projector on a budget, LCD is the way to go. Things could change next year, though, and we'll be keeping a firm eye on proceedings.

IN DETAIL Perfect projection at the right price

* Best in class	**£1,400** Hitachi PJ-TX200 **95%**	**£1,500** BenQ PE7700 **82%**	**£870** Infocus Screenplay 5000 **55%**	**£1,700** Toshiba TDP-MT700 **76%**	**£1,500** Panasonic PTAE900E **93%**
TECHNOLOGY	LCD*	DLP	LCD*	DLP	LCD*
NATIVE RES	1,280 x 720	1,280 x 720	1,280 x 720	1,280 x 720	1,280 x 720
NOMINAL HD INPUT	720p	720p	720p	720p	720p
MAX HD INPUT	1080i*	720p	1080i*	1080i*	1080i*
BRIGHTNESS (LUMENS)	1,200*	1,100	1,100	1,000	1,100
CONTRAST	7,000:1*	2,500:1	1,200:1	2,000:1	5,500:1
LENS SHIFT	Yes*	No	No	No	Yes*
NOISE (ECO)	24dB*	26dB	34dB	29dB	32dB
DIGITAL INPUT	HDMI*	HDMI*	M1 DVI	HDMI*	HDMI*
MAX. ZOOM	1.3x	1.4x*	1.2x	1.3x	1.2x
BUILT-IN SPEAKERS	No	No	Yes	No	No
DIMENSIONS (WHD)	430x113x298mm	380x115x300mm	294x103x260mm*	380x115x300mm	335x95x270mm
WEIGHT	4.7Kg	5.5Kg	3.4Kg*	4.5Kg	3.6Kg

TV GO OUT

Mustek DVT407

Watching DVDs on the move is *so* 2005.
To really cut it you need digital TV as well

Price £180 **Manufacturer** Mustek **Web** www.mustek.com

Mustek has a reputation for producing no-frills, reliable kit, and that's not about to take a beating here: the DVT420, a DVD-player and DVB-T receiver in one, is as unspectacular and intuitive to use as a pair of socks. While its setup wizard and attendant Electronic Programme Guide may both look like they're lifted from a DOS program knocked together in 1994, they at least do the job that's required with virtually no fuss.

The same can be said of the casing and button layout: this is a solid, no-nonsense personal DVD player that won't take any hassle from the other items in your overnight bag, as it's considerably sturdier than most consumer electronics hardware.

MEAT AND POTATOES

Such spartan design may have its detractors, though. And the unit's unrepentantly grey plastic cladding belies its reasonably hefty price tag. Once you fire it up, the 16:9 screen is also a little bit of a letdown. Traditionally, animated fare like *Family Guy* and *The Simpsons* works a treat on screens of this ilk, while live-action footage can suffer. Thanks to the decidedly narrow viewing angle, the same is unfortunately true of the DVT407. Watching big-screen epics like *Gladiator* is perfectly doable, but don't expect to be whisked away to ancient Rome by drop-dead gorgeous visuals. That said, if you are desperate to see the whole of the *Lord of*

the *Rings* trilogy in one nine-hour squint-tastic sitting, the supplied charger pack means that the Mustek will happily oblige. Its case is also helped by the large number of ports on its side, which mean it can be used as a standalone DVD player or DVB-T receiver, and the inclusion of a second headphone socket and a neat, responsive remote control was a wise choice.

So, it's not all bad, but not great either. The digital TV angle is all well and good, but we can't help thinking that the supplied aerial will fail in areas where digital coverage is less than excellent, and with DVB-H just around the corner, may soon be outdated. That said, this is a competent alternative to using a notebook for your entertainment. **Alex Jones**

Screen size	8.4-inch
EPG type	256-colour blended display
Battery life	Approx nine hours
Extras	DVB-T aerial, IR remote control, battery pack

74% **PCF says...** "A boon on the train, but won't inspire commuter envy. "

RADIO ACTIVE

Acoustic Energy Wi-Fi Radio

Catching the sounds of now, all through the magic of the interweb…

Price £200 **Manufacturer** Acoustic Energy **Web** www.acoustic-energy.co.uk

No one would've believed, in the last years of the 20th century, that so many radio stations could be captured by a single device. Once again, the internet has triumphed over licensing to provide you with all the content you can eat. As long as you've a wireless network in your house, the Acoustic Energy Wi-Fi Radio can tap into the web, and pick up internet radio.

But why would you need this when we have DAB, and good old-fashioned FM? Because there are around 10,000 currently active internet radio stations available. The power of this wee gadget is that it offers a compiled list of them, provided by Acoustic Energy on startup, and lets you browse them by genre. The volume of music on offer here is staggering.

RADIO GA GA

Of course, quantity is no guarantee of quality, and as in all things web-related, you have to open a lot of niffy old clams before you find the pearls you're looking for. But that's hardly the Wi-Fi Radio's fault. In truth, it's extremely simple to use; just plug it in, turn it on, and get it to scan for available networks. It supports WEP and WPA

authentication, although we found it a bit troublesome with certain networks. However, switching off authentication solves this. Once connected, you can scan for all radio stations, and browse them by title or genre.

The device also supports on-demand content stations, and in a masterstroke, allows you to listen to your PC's music collection through Windows Media Player. And while the sound quality isn't astonishing, it's perfectly enjoyable.

In all, it's a great gadget, but rather pricey for the technology that you're getting. It beats the pants off DAB in terms of choice, but bear in mind that DAB radios are considerably cheaper than the WI-Fi Radio's £200 price-tag. If you find that justifiable, then you won't be disappointed. **Al Bickham**

Streamed media:	WMA, AAC, MP3, REAL
Encyption:	WEP, WPA
Screen:	Backlit LCD
Dimensions (mm):	124 x 168 x 120
Colour options:	Gloss black, silver

82% **PCF says...** "A practical and sexy piece of kit, but it doesn't come cheap."

top gear PCFormat

"All the benefits of a desktop machine, with the practicality of a laptop"

It may be a hefty lump, but the M70's versatile and fairly high-spec.

DIVIDE AND CONQUER

Samsung M70

It may not be the fastest laptop in the world.
But it's not the winning, it's the taking apart…

Price £1,740 **Manufacturer** Samsung **Web** www.samsung.com

This is an incredibly hefty beast. When PCF first got its hands on the seemingly immovable swathe of silver plastic that is the Samsung M70, it half expected to flip it over and find the Ten Commandments carved into the underside.

In fact, with its enormous 19-inch LCD panel, it makes other portable porkers such as the Dell XPS look positively svelte in comparison. There is a reason for this madness though, and we'll get onto that later.

Once again, we have a laptop here that really isn't very portable. The floppy laptop bag packed in with the M70 is almost a sheepish admission that, if you're moving this slab, you're better off using a flatbed truck than risking your vertebrae with the strain. This is a desktop replacement in the purest sense, with a 2GHz Pentium M, the now-obligatory 1GB of RAM and a dual-layer DVD writer. There's even a GeForce 6600 to offer a bit of graphics poke, though relatively weak *Quake IV* performance (25fps) illustrates that this isn't aimed at the gaming fraternity.

Replacing desktop PCs isn't the M70's real party trick as it turns out:

transforming is. Optimus Prime and his chums would be proud to watch the catches at the rear click open and the entire screen detach from the chassis. They'd be even more impressed to see that, thanks to the supplied dock, it becomes a standalone, DVI-ready monitor for use with either the dismembered M70 or any other PC. Using the M70 in two parts brings all the benefits of a desktop machine (a large screen, a more comfortable viewing angle and so on) with the practicality of a laptop. Best of all, if you fancy using it

for media duties, you simply carry the intelligent half of the system to the living room, slide it under the TV or settle it on your lap.

CLUNK CLICK EVERY TRIP

We're bigger fans of the M70 than we thought we'd be. Whether you want a tidier desk surface, or a powerful PC that you can move easily from room to room, the Samsung M70 fits the bill. In fact, it seems the only place where the system falls down somewhat is as a laptop – the sheer size of the machine makes it impractical for everything but the longest journeys. If you'd like a handsome laptop with plenty of processing power, and only intend to lug it around on rare occasions, though, Samsung's revolutionary design should suit your needs perfectly. And when the M70 becomes obsolete, as all laptops are wont to do, you'll still have a TFT to use with its successor.   **Mike Channell**

top gear PCFormat

In the dock
Breaking up isn't hard to do…

We must admit, it felt very strange the first time we unclipped the M70's screen and felt the laptop come apart in our hands. It's a very easy process, though. Samsung even provides little blocks to cover up the exposed ports when the screen has been removed. A very neat idea indeed.

CPU	2GHz Pentium M
Screen	19-inch 1,680x1,050
Memory	1GB
Storage	100GB HDD
Video	NVIDIA Geforce Go 6600
Optical	Dual layer DVD-RW
Comms	Gigabit LAN, wi-fi, bluetooth, modem
Connectivity	4 x USB 2.0, 1x Firewire
Weight	4.4Kg
Size	435x314x39mm

87% **PCF says…** "This laptop is truly more than the sum of its detachable parts."

POWER TO THE PEOPLE

Billion Powerline Kit

Easy to deal with, and good looking. It's true of *PCFormat*, but not of this router…

Price £71 (router), £56 (access point) **Manufacturer** Billion **Web** www.solwise.co.uk

We'll take the fact this router's date was set by default to 1970 as a clue to its rather 'unorthodox' aesthetics. To say this networking kit looks dated is a rhinoceros sized understatement.

Unfamiliar with powerline networking? Instead of sending your network via wireless ethernet cable, your signals hop onto the power cabling around your house at up to 14Mbps. On the whole, it costs more than wi-fi, and it's not a new concept – we've seen similar kits from Phonex and Devolo.

NO OBSTACLES
The Quick Start instructions – yes, we do read them – are poor, only getting you as far as plugging everything in and making sure the IP settings on your PC are above-board. The disc consists of a manual, and a program called *Router Finder 1.26,* which is only slightly less effort than pinging its IP yourself. Billion's problem isn't with the concept, though, it's with the execution.

The router sits by a phone point, and the second part of the kit pops into a plug socket elsewhere in the home, but it takes the signal from the powerline and broadcasts a wireless network. A handy alternative to a single wi-fi router in thick-walled homes, or in situations where your wireless network has trouble penetrating ceilings and floors. The trouble is, the body of the device stretches far below the three-pronged power plug, which means you'll need a lot of space around your sockets.

Back to the setting up process, and the manual is shamefully lacking in some important areas. The 802.11g adaptor instructions don't even tell you how to configure the device, although if you're familiar with access-point setup procedure, it's reasonably easy to work out. Hardware manufacturers please take note: this kind of thing needs to be made crystal clear from the outset. The router does detect the Wireless-G adaptor without issue, and with a bit of poking around, you might be able to configure it. It's an expensive alternative to wi-fi, though, and considerably slower, too. **Dan Grabham**

Router 7560 Powerline ADSL Router

Data rate Up to 14Mbps data rate

Extras Parental controls with URL blocking, VPN compatible, firewall

WLAN adapter 2060G Powerline to Wireless-G Access Point

Wireless 802.11b/g compatible

Security WEP and WPA

72% **PCF says…** "As a wi-fi alternative, it functions well, but it's not cheap."

GULF STREAM

Evesham mBox

Take two streaming devices into the shower? Well yes, we do actually…

Price £599 **Manufacturer** Evesham Technology **Web** www.evesham.com

Time, and the sharp end of a ruler, have taught us that one plus one equals two. Here, it seems to equal about 1.8 Network storage meets audio streaming is the story here. PC manufacturer and etailer Evesham, with its new mBox device, takes a cut-and-shut approach.

OLD FUSION
The company has fused and rebadged Thecus' butt-ugly Yes-Box NAS device – in this instance, with two 160GB SATA drives onboard – and Rokyu's Soundbridge M1000 audio streaming device. The Soundbridge is capable of streaming just about anything over your wireless network – such as your PC's music collection or internet radio. Its use is limited here, though, as the mBox uses *iTunes Server*, meaning WMA isn't even in the dictionary.

On the plus side, Evesham has added an 802.11g Mini PCI wireless card to the mBox, for direct, PC-less communication with the Soundbridge. The box is designed to be the store for all your digital music (and other files, should you wish) and mirrors the data across its two SATA drives, so it's always backed up.

This model has two 160GB drives included for £599, while capacities are available up to 2x 400GB (£899), with 2x 500GB units to follow. Grunt comes from an Intel XScale 80219 processor, plus there are two Gigabit Ethernet ports and three USB 2.0 connections for connecting auxiliary drives. Interstingly, you can add more Soundbridges; either Evesham's or a standard Rokyu unit, which is slightly cheaper.

The biggest limitation (aside from the poor price to capacity ratio) is the lack of support for WPA encryption – especially in an age where more and more routers turn on security by default. As a bundle that streams and stores media directly from the off, the mBox is actually one of the best choices the market offers. It's just a shame that the in-built Soundbridge's versatility isn't fully utilised by the device, which, in practice, is simply too restrictive for our tastes. **Dan Grabham**

Wireless 802.11b/g

Processor Intel XScale 80219

Capacity 2x 160GB SATA drives

Ports 2x Gigabit Ethernet, 3x USB 2.0

Security WEP only

Extras Instant copy function for drives connected to the front USB port

76% **PCF says…** "What it does, it does well, but it's not very versatile."

CARD SHARP

Sparkle 7600GT

The best budget card in the world, ever? Quite probably…

gold
PCFormat

Price £140 **Manufacturer** Sparkle **Web** www.sparkle.com.tw

We've loved it for ages, but the stalwart little pixel-puncher that is the 6600GT is finally going out to pasture in favour of NVIDIA's new budget bulldog, the 7600GT. And although the initial pricing puts it closer to the midrange level, you'll probably be able to pick one of these up for closer to £100 by Christmas, and at that price, it'll be utterly irresistible.

Why? Because even for £140, this card offers awesome performance. It costs a little more than the average X1600, ATI's latest budget card, but frankly, it blows it out of the water. It even doubles framerates in certain games over the 6600GT, for a premium of only £40. What's not to like?

BUDGET BRILLIANCE
The card is built around the G73 core, another reworking of the G70 using the new 90nm process. So while it seems, in name at least, to be a development of the 6600, it's really not; it's actually a 12-pipe card, running at a reasonably respectable 560MHz, with 256MB of 1400MHz memory. A couple of years back, you would've paid more for a card that was, relatively, half as good.

When set against its competition in the marketplace,

the 7600GT shines. At a resolution of 1,280x1,024, with 2X full-screen anti-aliasing and 4X anisotropic filtering, it manages a healthy 63.1FPS in *Quake IV*. Compare this to the 6600GT which lags behind at 37.5fps, and the X1600 which positively plods at 32. It also shows its ability to play with the big boys; *F.E.A.R.* at the same settings sees it rolling at 47fps, with the 6600GT managing 27fps, and the X1600 pulling back a little dignity at 33. And even on *Oblivion*, it outperforms the others by 30%.

Cool, quiet and confidently powerful for the acceptable asking price, the 7600GT is the best budget card ever, plain and simple. And at £140, this Sparkle model is a great deal all round. **Al Bickham**

GPU	G73
RAM	256MB GDDR3
Core clock	560MHz
Memory speed	1,400Mhz
Form factor	PCI Express
Pixel pipelines	12
API support	DX9.0c, OpenGL 2.0
Shader support	HDR, SM2.0, SM3.0
Card size	Single width
Dual card support	SLI

90% **PCF says…** "For those on a budget, it's the only card in town."

UNDERSEXED

Sparkle 7900GT

NVIDIA's new midranger is jockeying for position, but it's picked a bad time for it…

Price £220 **Manufacturer** Sparkle **Web** www.sparkle.com.tw

The graphics card market is an ever-shifting mosaic of performance vs. price. New cards and rapid price-drops mean that today's basic midranger can unexpectedly become next week's budget sensation.

Take the X1800XT – a bit of a limp willy when it was released, barely competing with NVIDIA's 7800GTX, and out-pricing it by a meaty margin. Not a good deal by any means.

But strangely enough, the 7900GT has thrown the X1800's abilities into sharp relief. NVIDIA's new 24-pipe midranger is the spiritual successor to last generation's 7800GT, although it actually outperforms the 7800GTX, due to its more efficient core. Operating at 660MHz on the GPU and 1.32GHz in the memory department, it's a pretty swift board – one of the faster midrange models we've seen.

MIDDLE OF THE ROAD
And the new 90nm process-technology core runs pretty coolly and efficiently – the upshot of which is that the 7900GT puts the 7800GT to shame, by a margin of seven frames per second in *Quake IV* at 1,280x1,024, and by a fairly hefty 17fps in *F.E.A.R.*'s shader-heavy environs. It even manages 10 frames up in *Oblivion*, compared to the 7800GT, and this is the really telling bit – not only does it

outperform the older card in raw power clock numbers, but it's a much more accomplished card when it comes to shader-heavy games, which really is what it's all about these days.

However, there's a rather large fly in the ointment, and it's a big red one – ATI's X1800XT. Once the high-end no-hoper, it's now a midrange roaster, due to a tommy-gun stutter of rapid price-drops after the X1900XTX launch. The X1800XT can be had for the same price as the 7900GT, and outperforms it comfortably, especially in *Oblivion*, which sees it 10fps up on NVIDIA's offering. The 7900GT is by no means a bad card, but NVIDIA has picked a hell of a time to release an expensive midrange card. That slot is currently hogged by the X1800XT, and if we were forced at gunpoint to spend £220 on a graphics card, we know who we'd be giving our money to. **Al Bickham**

GPU	G71
RAM	256MB GDDR3
Core clock	660MHz
Memory speed	1,320MHz
Form factor	PCI Express
Pixel pipelines	24
API support	DX9.0c, OpenGL 2.0
Shader support	HDR, SM2.0, SM3.0
Card size	Single width
Dual card support	SLI

80% **PCF says…** "Not bad, but the X1800XTX offers more bang-for-buck."

More benchmarks and details can be found on your coverdisc
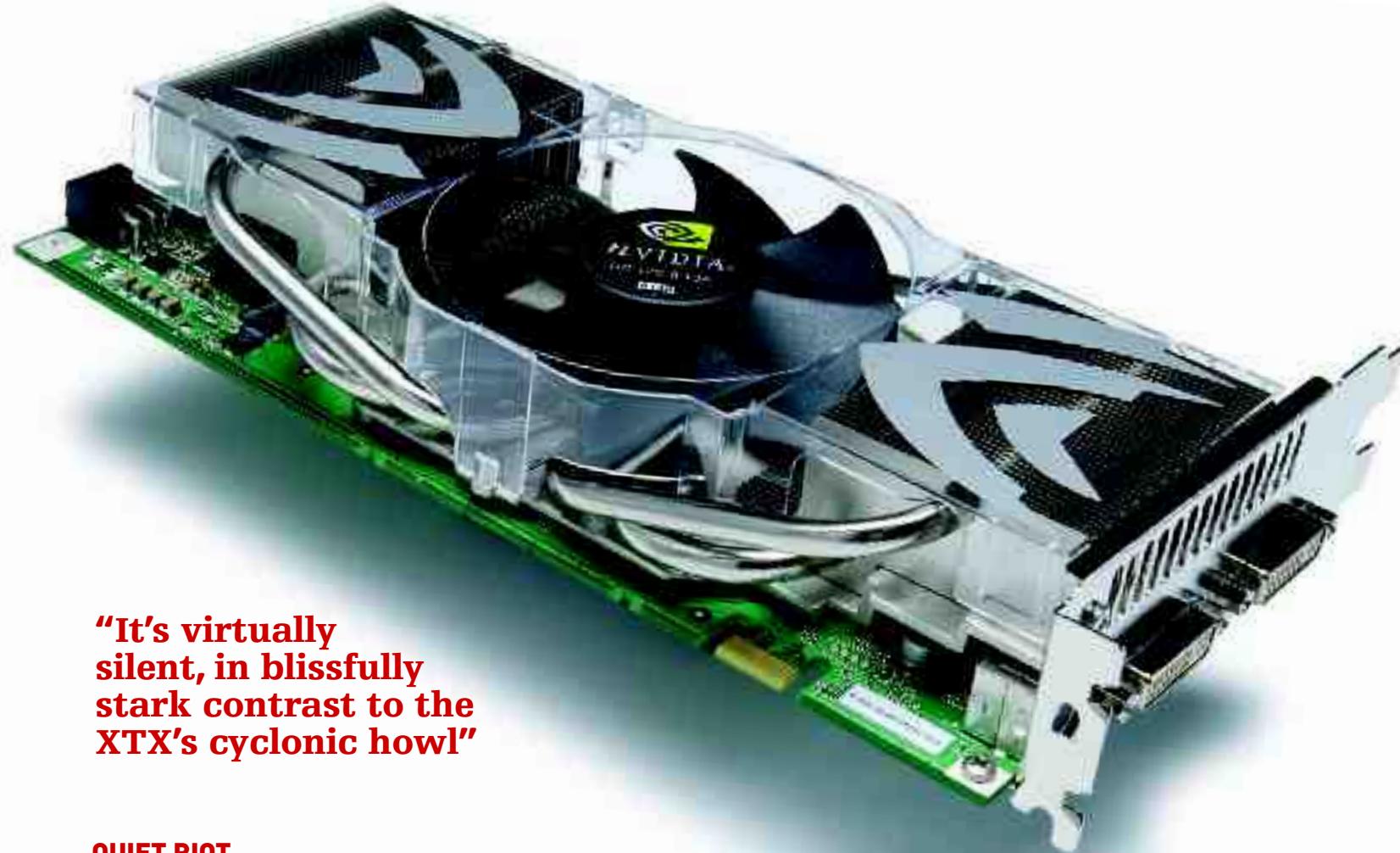
"It's virtually silent, in blissfully stark contrast to the XTX's cyclonic howl"

QUIET RIOT

Sparkle 7900GTX

The first of the eagerly awaited 7900GTX retail cards has arrived, and it comes out swinging…

Price £375 **Manufacturer** Sparkle **Web** www.sparkle.com.tw

Like runners in some endless, cyclical remake of *Chariots of Fire*, ATI and NVIDIA tend to take it in turns to steal a march on one other in the drive for superior 3D cards. But the lines of development they've taken are far from parallel. Rather than striving for superiority in identical technology, each has beetled off down a slightly different path. ATI's elegant and inventive architecture deals with shader-intensive apps much better, especially at high resolutions. NVIDIA, on the other hand, is traditionally ahead of its rival on raw throughput, and with the 7900GTX, is first on the shelves with the reduced-size 90nm core process, making for more power-efficient, cooler and quieter cards.

NVIDIA's new flagship chip, the 7900GTX – codenamed G71 – is a 90nm reworking of the 110nm 7800GTX core (G70). While it still features 24 shader pipeline, the die-reduction also features some 24 million less transistors than G70, which seems strange, given NVIDIA's previous striving for bigger numbers. But the fact is, it still outperforms G70 comfortably, and is nearly on a performance par with the 512MB revision of the 7800GTX. It's

also identical in size and shape, hefting as it does that colossal, industrial heatsink.

DES RES
Naturally, its primary target is ATI's X1900XTX, the current market leader. And at standard resolutions, the 7900's 650MHz clockspeed goes to work in fine style. As the benchmarks below show, it's ever-so-slightly quicker at standard settings than the X1900XTX. However, spin the resolution up, and the XTX's scalability leaves the 7900GTX panting. If you're running at retina-ripping resolutions: it's cigars all round for the X1900XTX. But at the standard 19" TFT resolution of 1280x1024, the GTX just

pips the XTX on framerates. There's really not a lot in it either way, though.

Pricewise, the GTX is around 10% more expensive, but shopping around narrows the price gap to less than a tenner. This Sparkle model definitely sits at the smiley end of the GTX spread, coming in at £375. Compare that to the average X1900 XTX, around £370 now, and you've got bugger-all difference. It's also worth noting that the 7900GTX is virtually silent, in blissfully stark contrast to the XTX's cyclonic howl.

Even with ATI's RD580 boards (p73) SLI is a more reliable twin-card setup than CrossFire, and as reported last month, the 7900GTX gets an impressive 80-85% high-res boost in SLI. This is a superb card, but it's just not a shift up from the 7800GTX. It's the result of more advanced manufacturing applied to last-generation tech. That may not mean an awful lot right now, but when NVIDIA's 8-series cards arrive…   **Al Bickham**

BENCH MARKS	X1900XTX	7900GTX
QUAKE IV 1,600X1,200 , X4AA, X8AF, UQ	67.1	59.2
QUAKE IV 1,280X1,024, X4AA, X8AF, MQ	78.4	87.1
FEAR 1,600X1,200, X4AA, X8AF	50	46
FEAR 1,280X1,024, X4AA, X8AF	65	67
OBLIVION 1,600X1,200, X4AA, X8AF	37.7	40.9
OBLIVION 1,280X1,024, X4AA, X8AF	40.3	42.4

More benchmarks and details can be found on your DVD

GPU G71
RAM 512MB GDDR3
Core clock 650MHz
Memory speed 1,600MHz
Form factor PCI-Express
Pixel pipelines 24
API support DX9.0c, OpenGL 2.0
Shader support HDR, SM2.0, SM3.0
Card size Dual-width
Dual card support SLI

85% **PCF says…** "Cool, quiet and intimidatingly good in SLI, but just short of the X1900XTX."

top gear **PCFormat**
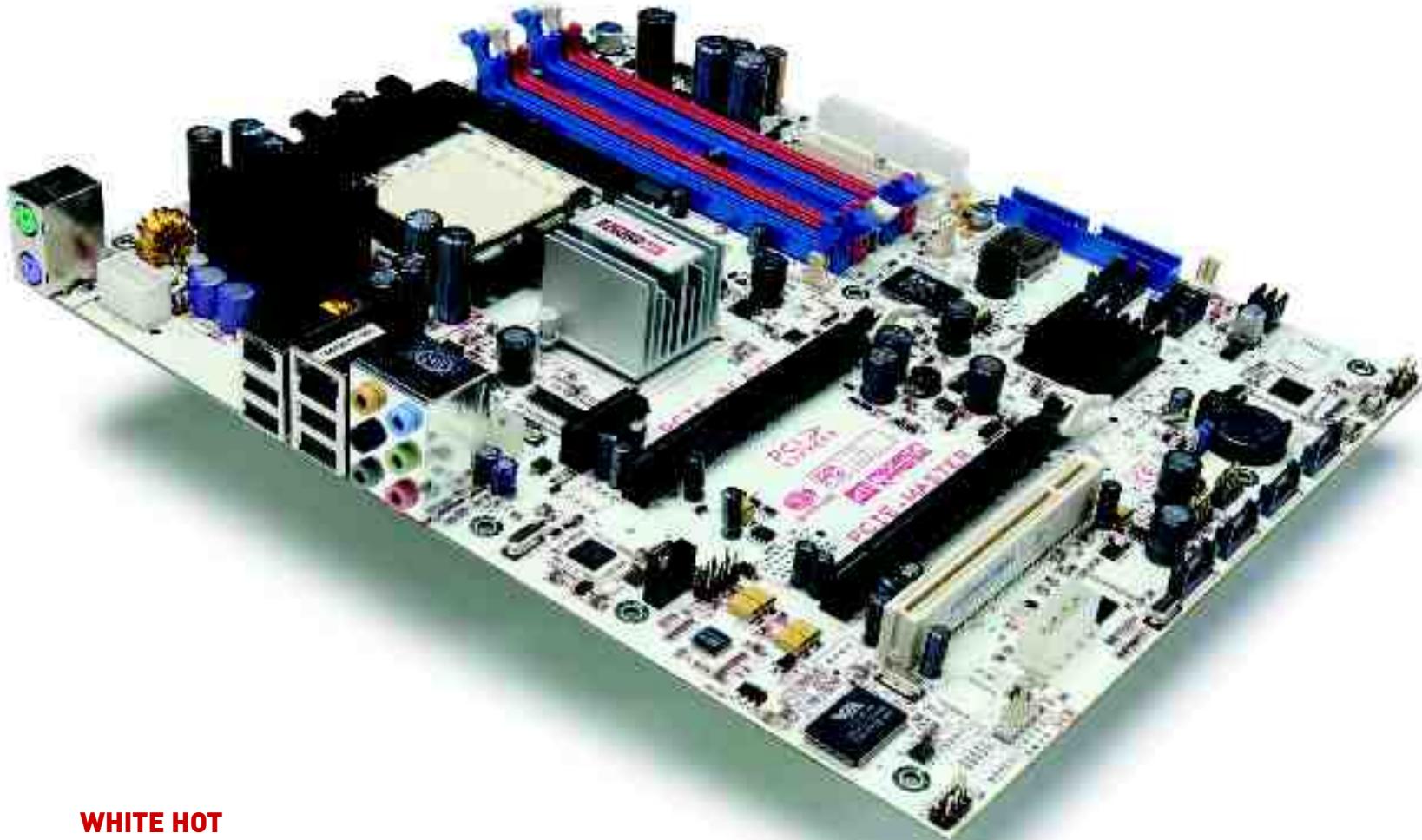
WHITE HOT

Sapphire Pure RD580

After a long and painful teething process, is CrossFire finally a dual-card contender? The answer, surprisingly, is yes…

Price £130 **Manufacturer** Sapphire **Web** www.sapphiretech.com

SLI is great, there are no two ways about it. It's a slice of Battenburg to set up; all you need to do is plug in a second card, attach a bridge-chip between the two, turn on your PC and enable dual-card graphics in the Forceware drivers. CrossFire, on the other hand, has always been a little more clunky, a little more fiddly, and behind the curve on performance.

RD580, ATI's new CrossFire-friendly motherboard chipset, is supposed to change all that. But for now, let's use its street name of Xpress 3200 – after all, R580 is the name of the X1900 core, and there's quite enough confusion in hardware naming-conventions already, without this little gem of a bamboozler baking our noodles.

This Sapphire motherboard boasts the Xpress 3200 and, of course, dual PCI-E x16 slots, for CrossFire magic. And from the word go, it's very easy to set up. There's very little fiddling around to be done; the dual-card system is already activated in the BIOS, so all it takes is to install the chipset drivers in Windows. Although we found it's worth checking the ATI website for the latest Catalyst Xpress chipset drivers – the revisions appear to be coming thick and fast at the moment.

PLUG AND PLAY

Once the latest Catalyst drivers are installed, you just need to slot in a CrossFire master card, and a CrossFire-ready card from the same stable (X1900 XT, for example). Sadly, that pre-release crowing about cross-stable compatibility never materialised, so you can't mix, say, an X1600 and an X1800. In addition, you still need to plug in the CrossFire dongle – never the most elegant of solutions. But once the cards are in, you can simply activate CrossFire in the Catalyst Control Centre. Finally, it's foolproof to set up, and just… works. But what's the performance like? In a word, awesome. Granted, we've been testing with a pair of X1900XT cards – the fruitiest CrossFire setup available – but it goes to show that the system works well at the high end. It

beats our 7900GTX SLI rig with 67fps in *F.E.A.R.* at 1,600x1,200, with the details maxed, and a stunning 85fps at 1,280x1,024. *Quake IV* leaves a little to be desired, as ATI cards have never handled OpenGL as well as NVIDIA ones. But it's all relative – who'd complain with 92fps at 1,600x1,200 on ultra-high? CrossFire works now. It's still a little inelegant – you need a costly CrossFire card, and reports of low-end setups such as the X1600 aren't promising. But up here above the clouds, you can see the sun – and it's emitting HDR light at a blistering framerate. Praise be! **Al Bickham**

gold *PCFormat*

"85fps in maxed out F.E.A.R. at 1,280x1,024 is stunning"

CPU Support	Socket 939 Athlon 64/X2/FX
RAM support	DDR400, dual-channel 4GB
Core Logic	ATI RD580 (Xpress 3200)
Graphics	2x PCI-E x16
Audio	Realtek 8-channel
Expansion	2x PCI-E x1, 2x PCI
Storage	4x SATA II/RAID, 2x IDE

BENCH MARKS	QUAKE IV 1,600 x 1,200, x4AA, x8AF, UQ	FEAR 1,600x1,200, x4AA, x8AF, Max	OBLIVION 1 1,600x1,200, HDR, Max	OBLIVION 2 1,280x1,024, HDR, Max
PURE RD580	92fps	67fps	54fps	67fps

More benchmarks and details can be found on your DVD

91% **PCF says…** "A ripping performance motherboard that handles CrossFire with ease."

MEDIA MAGNET
Plextor PX-EH40L 400GB

Run out of storage space? Perhaps it's time to think outside the box

Price £290 **Manufacturer** Plextor **Web** www.plextor-europe.com

For those who haven't heard of Network Attached Storage, the concept is very simple. Instead of storing media, data and so forth on a PC that you need to leave switched on so other networked PCs can access it, a NAS drive connects to the network via an ethernet cable, providing instant access to data. Whether you need it for sensitive documents that you'd like to keep hidden, or just a server to contain the hours of media that we're sure you own, network storage can be extremely handy.

STURDY SERVER
If you already have a router with DNS, simply plug the PX-EH40L into a spare ethernet port and switch it on. If you're connecting it directly to a computer, you may have to poke around with IP addresses, but for the most part, installation is easy.

The device appears as another computer on the network rather than a drive, and as a bonus you can plug a printer or external disc into one of the two USB ports on the back, and access those from anywhere on the network as well. There's also a tool which allows you to set the drive up as an FTP server, should you feel the need for one.

Our main gripe is the unit's relative lack lack of connectivity options; the only way to transfer data to and from the device is via ethernet. Many competing products on the market offer a USB 2.0 connection, which would make an initial upload of the multiple files less of a chore. We'd also like built-in wifi, since you're paying around twice as much as you would for a standard 400GB internal SATA hard disk.

For home users the PX-EH is undercut by the similar but cheaper Freecom Classic SL, which we found for £232. We'd also like to have seen a bit more versatility, and can't shake the feeling that using an old PC as an upgradable storage box would be a better option for most. **Mike Channell**

Connectivity	Ethernet
Input	2 x USB 2.0
Max data transfer	100Mb/s
Hard drive	400GB, 7200rpm
Dimensions	42x131x265mm
Weight	1.3Kg

78% **PCF says...** "It's almost the right time to buy network drives. Almost."

RAM RAID
Gigabyte iRam

And now it's time for something completely different…

Price £299 **Manufacturer** Gigabyte **Web** www.gladiatorcomputers.com

The benefits of a RAM based hard drive are obvious; near-instantaneous seek times with massive potential bandwidth, resulting in super-quick game loading and OS booting. The downsides, however, are too important to ignore. System memory requires a charge to retain any data stored on it, which means building some kind of battery backup into the system. And pounds-per-gigabyte, hard drive platters are much, much cheaper than chips, no pun intended.

DIMM WIT
Gigabyte has clambered over the first hurdle with the iRam. This PC card comprises four slots in which up to four gigabytes of standard DDR400 RAM can be slotted into. The unit is powered over the PCI bus, and uses the 1.5Gb/s SATA connection to talk to the PC's thinky bits. The result is a 4GB solid-state hard drive – complete with onboard battery, which charges itself when the card is plugged in.

However, if your PC is unplugged from the mains, you have T minus 18 hours before the battery sputters dry, and all your data is lost. Which makes the iRam a risky venture if you're thinking of a turbo-booting install of Windows on there. In addition, while we're assured that an OS can be installed onto it, it's an extremely fiddly process, and throws up constant, niggling little errors. However, as a storage medium for game installations, it's quite happy. In fact, while it doesn't actively improve framerates, it cuts a third off loading times, as it streams data much faster than a hard drive. *Quake IV* loaded in 20 seconds from the iRam, while a generic 7200rpm SATA hard drive took 31. An impressive time-saver.

But at what cost? Well, £299, to be precise. And you don't get any RAM with it, so you're looking at a minimum memory-spend of something like £180 for 4GB alone. This makes it one of the most expensive storage media on the planet. Bluntly, the Gigabyte iRam is a shaky first step in the right direction; fast and promising, but not yet entirely reliable, and very expensive. **Al Bickham**

Memory slots	Four
Memory type	DDR 200/266/333/400
Max memory	4GB
Interface	PCI
Data transfer	SATA (1.5 GB/s)
Raid support	Yes
Drivers	None required

50% **PCF says...** "A costly curio for the minted DDR RAM enthusiasts."
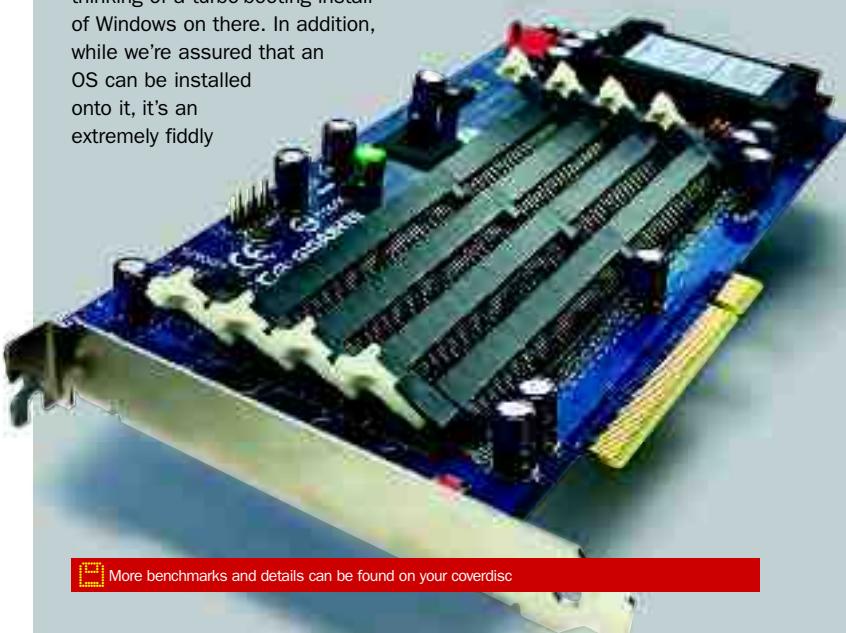
More benchmarks and details can be found on your coverdisc

ROUND-UP

POLYPHONIC SPREE

Al Bickham cleans out his ears and disturbs the peace with four 2.1 speaker systems

Photography Dave Caudery

You can't move for multiple-speaker setups these days. 7.1 and 5.1 sets are all well and good, but for many of us who wish to keep our desks blissfully clear of cabling and extraneous bits and pieces, such units just aren't necessary. You don't need full surround sound to enjoy music, or feel the rumble of a dragon as it stomps across the landscape in *World of Warcraft*. All you need's a good 2.1 setup, comprising two satellites and a subwoofer. And whatever your budget, there's a set to suit your ears. Over the next two pages, we'll be sampling a small cross-section of what's on offer, from cheap to pricey, and pointing out some of the pitfalls you should avoid when you invest in your next set of speakers. **PCF**

Aego M-System £79

Manufacturer Acoustic Energy   **Web** www.acoustic-energy.com

Bold, brassy and definitely classy, this system proves that you don't need to cross the £100 mark to get excellent sound quality. The sheer weight of the tiny satellites is the first indication of their performance – there are some heavy drivers in there. Not only are they capable of outputting enough volume to anger the neighbours, they do it with a clarity that'll turn anger to envy. The big sub has a well-placed volume control on the leading edge, and fails to distort at high decibels.

The only real downside is that the bass-level controls limit you to three settings, and are situated on the back of the sub. Daft, but certainly no deal-breaker, especially when the sound is as round and immersive as this.

Output 90W (70w + 10W +10W)

Sub frequency response 48Hz – 250Hz

Satellite frequency response 200Hz – 16KHz

Controls Volume, bass level (on subwoofer)

Extras None

88% **PCF says...** "Faff-free, high-level audio reproduction at a pleasing price – and the speakers look pretty good, too. What's not to like?"

Altec Lansing MX-5021 £93

Manufacturer Altec-Lansing   **Web** www.alteclansing.com

The sound produced by these Altec-Lansing speakers is fairly exquisite. Each satellite has a pair of midrange cones and a horn-loaded tweeter for wide dispersal. Mount these on the wall behind your PC at head level and you'll be guaranteed an earful. The wired desktop remote allows you to control the volume, as well as boost the treble and bass output, which you'll want to do if you want as rich a sound as possible. You also get an IR remote, which is handy.

The sound is crisp and rich, with deep bass and great distinction between voices, which makes it a scrap for top spot between this and the Aego M-system. It depends what you're after really; pure sound or extras. The MX-5021 has both.

Output 28w (18W + 5W + 5W)

Sub frequency response 20 – 22Hz

Satellite frequency response 80Hz – 20KHz

Controls Wired (power, volume, line-out, line-in)

Extras None

89% **PCF says...** "2.1 audio for the connoisseur, but the budget-conscious will baulk at its considerable pricetag."

Genius SW-i2.1 1100 £25

Manufacturer Genius   **Web** www.geniusnet.co.uk

Cheap and cheerful is always a consideration for the budget-conscious, and this 2.1 set from Genius is both of these. You'll smirk at the packaging, which proclaims these are 'fashion 2.1 home stereo speakers'. So they're made of white plastic? Check.

With only 28 Watts to play with, they won't to raise the roof, and while the bass is reasonably low, it rounds out the sound to a decent degree. However, the satellites overpower the lower end of the soundstage with their flat, bright output; the separation between voices isn't astounding.

That said, they're decent for the price. The tabletop power/volume control is a handy addition, though it does of course mean more wires snaking across your desktop.

Ouput 28W (18W + 5W + 5W)

Sub frequency response 20Hz – 22Hz

Satellite frequency response 80Hz – 20KHz

Controls Wired (power, volume, line-out, line-in)

Extras None

72% **PCF says...** "A neat little 2.1 setup, but if you spend just a little more, your music and gaming will sound better, and your ears will thank you."

Pocket money pages

SUB-£100 GOODIES FOR THE BARGAIN HUNTER

Foxconn RC4107MA

It's small, but heck, it's wily…

Price £54 **Manufacturer** Foxconn **Web** www.foxconn.com

The demand for small form factor PCs has been steadily rising over the past few years, hand in hand with the shift towards Media Center PC nestling beneath our televisions. With the move to teeny weeny machines, there have to be sacrifices; it's rare that you'll find a SFF PC with enough hustle to power the latest games. Enter the RC4107MA Micro-ATX board, which is perfect for an SFF PC and a lot more besides.

The real draw is the fact that Foxconn has shoehorned socket 775 support and a PCI-E slot onto the board, meaning this can handle the later P4 desktop processors and the latest 3D cards. You can incorporate this miniature board into a high-end SFF gaming system that will still look respectable between your VCR and your television. If you fancy a silent PC, there are no fans to ruin your aural experience either. All in all, this was a very pleasant surprise when it dropped through the *PCF* letterbox, and the £54 pound price tag makes this affordable, as well as desirable.

gold
PCFormat

Form factor	Micro ATX
Socket	775
FSB	800MHz
Chipset	ATI RX200
Memory support	2GB max, DDR2 667MHz
Graphics	PCI-E

90% **PCF says…** "A slinky little number if ever we saw one. Check it out."

MacAlly mTUNE-N headphones

Price £34 **Manufacturer** Macally
Web www.mcally.com

To make these cans come alive, you must insert an iPod Nano into the side of the left earphone. An obvious flaw in this plan is that perching a £180 iPod behind your ear leaves it in a ripe for the swiping. Also, the hard plastic dock won't do the player's fascia any good. When the iPod is loaded, the touchwheel is accessible, but fiddly, too. It's not all bad news though; the headphones are comfy and sound reasonably impressive. Best of all, if you don't want to muck about with this iPod plug-in nonsense, there is an included 3.5mm cable to connect it to another device.

74% **PCF says…** "Decent 'phones, despite all the iPod nonsense."

RemotePoint Presenter

Price £94 **Manufacturer** Interlink
Web www.interlinkelectronics.com

If you don't fancy spending your presentation in a Quasimodo hunch over the PC, an RF remote could be the executive toy for you. Acting as a mouse, you can use this to flick through your *Powerpoint* shows, and even zap relevant points with its laser. If this all seems like a *Star Trek* fever-dream, well, you'd be right. The mouse control nubbin, despite being analog, is a bit slow, there's no media control options, and the USB receiver is enormous. Even the onboard 32MB of flash memory isn't enough to justify that cheeky price tag. We'd suggest picking up something cheaper.

68% **PCF says…** "Powerpoint fans rejoice, but we've seen better."

E3c Sound Isolating Earphones

Price £92 **Manufacturer** Shure
Web www.shure.com

These produce some of the finest sound our lugholes have ever experienced. More importantly, they almost entirely cancel out background noise (including the sound of your bank manager spontaneously combusting in horror). Yes, these are rather pricey little 'phones, and are reserved for the audiophile with money to fritter away. We wonder if they really cost that much more to produce than your boggo iPod efforts, but either way, we'd suggest looking at one of the more downmarket products such as the E2c, which, while inferior, won't rent your wallet asunder.

76% **PCF says…** "Great sound, but by jingo, they're pricey."

Trust Gamer Mouse Optical

Price £15 **Manufacturer** Trust
Web www.trust.com

A gaming mouse that only costs £15? Sounds too good to be true, doesn't it? Well, in this case, it is. Despite a reasonable chassis, and a 1,600dpi button for doubling the sensitivity, our unit had a flaw. Every so often, the mouse would disconnect and reconnect, so occasionally, we found ourself stood next to a railgun-toting Games Editor with no method of defence. Needless to say, this cost us several kills and the price of one broken window that the mouse sailed through post-game. If you're serious about gaming, then paying £15 quid for a mouse is asking for trouble.

40% **PCF says…** "Nice idea. Terrible, terrible execution "

DJ Control MP3

Mix up your music the easy way…

Price £59 **Manufacturer** Hercules **Web** www.hercules.com

The rise of MP3 downloading and cut-and-paste software meant that desktop DJs could quickly rival the mixing 'talents' of their heroes. Everywhere you go, from overpriced clubs to the muddy fields of free parties, you can now find some sallow-skinned youth with a laptop, spinning virtual disks. And now you can, too. Plugging directly into a spare USB port, and requiring no other external power, the DJ Control MP3 is a perfect entry into the world of MP3 mixing.

There are all the knobs and faders that you'd expect from any standard mixer, plus a host of samples, loop controls and effects you can overlay on your tracks. The machine can also beatmatch tracks, so all you have to do is press play and gesticulate to the beat like a loon. There's even an Automix mode, which simply requires you to put together a playlist, then plays the lot in sequence, mixed together as closely as possible. Perfect for the easily soundtracked party.

Connection	USB (2.0 or 1.1)
Dimensions	235x200x65mm
Phosphorescent buttons	28
Warranty	Two years

85% **PCF says…** "A simple but surprisingly effective MP3 mixer. Rock on!"

top gear PCFormat

BT500 Headset

Price £40 **Manufacturer** Jabra
Web www.jabra.com

Anything that arrives in a box with messaging that encourages you to 'release your jabra' should be treated with suspicion. The BT 500 is a Bluetooth headset that sits on your ear and allows you to shout things while swaggering down the street.

The sound quality isn't bad, the controls are fairly intuitive and the earpiece is comfortable; it's a good example of a bluetooth headset. The only problem we have is that no matter how complicated your haircut, there is no way to wear or use one of these without looking like a numpty. Unless you make a lot of calls while driving, of course.

71% **PCF says…** "A good earpiece, if you can bear to wear it."

VigorTalk

Price £30 **Manufacturer** DrayTek
Web www.draytel.org

This is a stab at bringing the joys of VoIP to a wider audience. This palm-sized box connects to your LAN and a standard telephone to Draytel's VoIP service, allowing you to make and receive calls online. Setup takes minutes, and you're assigned a free phone number for incoming calls and £2 worth of credit to play with. The call quality is great – despite a slightly longer delay than a regular phone call, the Draytel connection is perfect for a good natter. The top-up-based tariff is competitive, particularly for daytime calls, and because the device is portable, you can use it anywhere with an internet connection.

top gear PCFormat

89% **PCF says…** "Quick to set up and affordable. Impressive. "

Kingston Data Traveller Elite

Price £200 **Manufacturer** Kingston **Web** www.kingston.com

£200? This flash drive shouldn't even *be* in these pages. 4GB of flash storage is not to be sniffed at, but it doesn't justify a longer review. Think of what you could use all that space for – games, music, or a complete backup of your most treasured files. Whatever, it's a huge space for something smaller than a stick of lippy, and features a neat security feature that password-protects the data. Granted, this is more use to a man in a suit than a man in jeans, but there you go; for £200, you need something extra. For £200, it should peel grapes, and do a little dance. Sadly, we can't have it all.

67% **PCF says…** "It's fantastically overpriced, but works well."

RATINGS BEYOND THE WARRANTY

Modular DAB PCI card

PCF 139 85%

Let me tell you about Bath, the town PCF is created in. It's pretty, relaxed, and largely non-violent, despite having a crazy shouting drunken hobo quotient on a scale better suited to somewhere far more populated. Its famous Roman baths, lovely Georgian architecture and association with Jane Austen ensure a thriving tourist industry, which in turn results in cripplingly high cost-of-living prices for its residents, a terrifying percentage of which are journalists.

Bath is also, essentially, in a bowl. Every route out involves a long, steep hill, and as a result there's unpredictable weather and a layer of smog over the city. Worse, there's no digital TV, and barely even analogue either. So, when this PCI card arrived in the office four years ago, we we were amazed digital radio existed here. Modern entertainment in Bath! Screw you, glaciers.

No-one else ever picked up the PC DAB baton, and the manufacturer has since gone the way of Shed Seven. But I still use it, running a brilliant piece of software called DAB Bar (www.dabbar.co.uk) that's for more versatile than the original app. I can even run it through Winamp – just pick from a list of stations and I'm away. There'll never be Vista drivers released for it mind, so that'll be that. Until then, though, my PC can pump out digital radio.   **Alec Meer**

We want your reviews… of still-loved old kit: al.bickham@futurenet.co.uk

The new Image Adjustment Lab lets you split a picture and instantly see changes.

The Power Trace system works well enough, but isn't a patch on *CorelTRACE*.

CorelDRAW is as good for designing websites as it is at fliers, brochures, logos, posters, signs, adverts, invitations…

GRAPHICS POWERHOUSE

CorelDRAW Suite X3

Flash support is dead, camera RAW support is poor and tracing has been downgraded. Just another rollercoaster release in the life of *CorelDRAW*…

Price £399 **Publisher** Corel **Web** www.corel.co.uk

Not everyone is content to live within the confines of *PaintShop Pro*, and few people would make enough use of *Photoshop* to justify its price tag, but what's left in between? We've been following *CorelDRAW* for more than a decade now, watching as new versions add features only to have them removed shortly after, while other new features actually stay and become a worthwhile addition to the suite.

We've found we got best value for money by using every third version, so we've focused on *CorelDRAW* 3, 6, 9 and 12. But rather than risk using 13 for a version number, Corel has given us *CorelDRAW X3* – another power-of-three release – so we couldn't resist taking it for a spin.

Before we start to dig in deep, here's the highlights: *CorelR.A.V.E.* has been killed off, presumably because it was clearly never going to compete against *Macromedia Flash*. *CorelTRACE* has been killed too, but some parts have been merged into *DRAW*, *CorelCAPTURE* remains little more than a fancy screenshots utility and *CorelPHOTO-PAINT* still doesn't read and write raw data from digital cameras.

YOU SHOULD ALSO CONSIDER…

>> **Adobe Creative Suite**
   Adobe
>> **Adobe Photoshop CS**
   Adobe
>> **Paint Shop Pro**
   Corel

> **"Corel adds features, only to remove them shortly after"**

Instead, Corel has tried to palm us off by bundling *RAWshooter Essentials 2005* from Pixmantec, but that gets it absolutely nowhere because a) *RAWshooter* is free, and b) *Essentials 2006* is already available for download, making the bundled version redundant.

TRACE MEMORIES

With *CorelTRACE* gone, *CorelDRAW* has inherited the ability to trace bitmaps itself. While this does make it much easier to do bitmap tracing (and therefore it's much more likely that people will use it), it's a shame that Corel left out some of the more powerful features when they merged the code. Worse, sometimes it locks up for up to a minute depending on what you were trying to do.

There are some genuinely new features in Corel*DRAW*: the new Smart Fill tool flood-fills an enclosed area in your picture, but then turns that fill into a shape in its own right that can be moved and manipulated freely. The new bevel and emboss effects are fast and can work on pure text rather than

converted curves, meaning that you can alter the characters later on without losing the effects you've already layered on top.

PHOTO-PAINT has seen some fresh polish, but not as much as it deserves. The new Cutout Lab incorporates some elements of Corel's standalone *Knockout 2* application, and allows you to cut complex objects out of a scene. In practice, *Knockout* was far superior; the knocked-off *Knockout* in *PHOTO-PAINT* is only fractionally better than using the old Brush Mask.

The new features in Corel*DRAW* are hard to live without once you've grown accustomed to them, but there's really not much else in the way of noticeable improvement and the gap between this and *Adobe Creative Suite* just seems to be growing.   **Paul Hudson**

Needs 600MHZ CPU, 256MB RAM, 200MB disk space

Wants 1GHz CPU, 512MB RAM, 500MB disk space

62% **PCF says…** "People say that 13 is unlucky for some. You can't cheat that with an X, clearly."

SecureOL VELite

The clever software that lures naughty malware into a false sense of security

Price £25 **Manufacturer** SecureOL **Web** www.secureol.com

By creating an invisible, virtual layer over your perfectly tuned XP install, *VE Lite* protects your system from any form of damaging attack, be that spyware, malware or viruses. No longer will you suffer a PC that chugs like a steam train just because you have a penchant for the seedier, sorry, less secure side of the net.

Unlike other virtual operating systems, it works seamlessly with your current installation – all your applications will function correctly in 'free mode', which implements a second kernel in order to protect Windows from harm. From here, you can install questionable programs, delete important system files and browse spyware-infested websites in total safety. Any downloaded files can then be transferred to your true desktop – checking them for viruses first, of course. When your 'free mode' falls victim to internet nasties, one click will reset the virtual space back to its original clean state – no harm done.

DAMAGE IMITATION

A startling premise, but is it all too good to be true? We demanded answers – by testing it out on Games Ed James Carey's beloved Shuttle XPC while he was otherwise engaged overseas. Jealous, us? Seven different

Internet Explorer toolbars, two Trojans and one Bonzi Buddy later, we'd managed to grind the browser to a halt. As a final blow, we renamed system files, deleted his *Quake IV* saves and played a few rounds of the strip poker game that had mysteriously appeared on his desktop. At this point we decided enough was enough, nervously returning to our 'real' desktop to assess exactly how much of a beating we'd all be receiving upon James' return.

Impressively, the 'real' desktop was exactly how we left it – the deleted files were back, and any software we'd downloaded and installed had disappeared without trace, with nary a toolbar nor pop-up to be seen.

These results are inspiring. The process of switching backwards and forwards between virtual and real desktops, transferring files in the process, can be time consuming, but for those of you who live in fear of compromising your rigs through reckless browsing, this really is an elegant solution. **James De Vile**

Needs 256MB RAM, Windows XP, 10GB HD space

Wants 1GB RAM, 80GB+ HD space

82% **PCF says...** "Original and effective, but somewhat heavy on disk space."

top gear **PCFormat**

Mobile 7 Great Britain (Nokia Kit)

Now you can buy a sense of direction, with GPS navigation on your phone

Price £205 **Publisher** Route 66 **Web** www.66.com

There are two main ways to avoid getting lost when driving your beloved motor. The first is to replace your engine with a wood-fired pizza oven. The second (and more preferable, unless you're particularly devoted to the gods of Quattro Formaggio) is to swap your current co-driver with a GPS system. This must be done with tact; particular care should be taken not to imply that he or she has all the navigation skills of a deranged hobbit stuck on a Wurlitzer. The perfect plan is to sneak in GPS on something friendly, like a mobile phone… which, of course, is about where Route 66 steps in.

EYES ON THE ROAD

Mobile 7 is the company's latest GPS navigation software for Smartphones. It's got all the bells, whistles and other bird-scaring devices that we expect these days: voice directions from the phone's speaker, dynamic maps in 2D or 3D, door-to-door instructions and much more. Installation is a five second job – slide the memory card into your phone, plug the supplied Bluetooth GPS unit to charge in the car and you're away.

The advanced functions do take some working out, but once you've done a couple of journeys

you're pretty much sorted. Postcode navigation is a bit of a disappointment – *Mobile 7* will only search on the first four characters. Thankfully, the fuzzy search is excellent. Stick in a house number and the beginnings of words (e.g. 30 Mo St Bath), and the search invariably comes up with the right result (in this case, 30 Monmouth Street, Bath). It also gives easy access to favourite locations and keeps track of your trip history.

When driving, the accuracy of the GPS information is excellent and the voice directions (spoken by a woman who sounds uncannily like she's sitting on a pineapple – "Take the next exut") are so good that you really don't need to look at the screen at all. And because it's on your mobile phone, you can even use it when you're walking around an unfamiliar town, as long as the surrounding buildings don't block out the incoming satellite signals. Marvellous. **Adam Evans**

Needs Nokia Series 60 Smartphone with free slot for extra MultiMediaCard, Bluetooth connectivity

Wants GPRS connection to download up-to-date traffic info, PC with USB connection to install other maps

89% **PCF says...** "Clear voice instructions and maps make it a worthy device."

top gear **PCFormat**

"You can keep your 40-man raid dungeons. Oblivion is a world well worth living in"

The combat system in *Oblivion* could never be described as 'intuitive'. 'Flailing' would be a better word.

high
score
PCFormat

CHOOSE YOUR OWN ADVENTURE

The Elder Scrolls IV

Oblivion

Complex, open and mesmerising: finally, a game that proves co-development for consoles isn't a death knell

Price £30 **Publisher** 2K Games **Developer** Bethesda Softworks **Web** www.elderscrolls.com

Adventure! There's no finer feeling. Whether it's discovering an ancient Saxon bidet hidden in a Pembrokeshire hillside during a rainy hiking expedition, single-handedly overthrowing a despotic government during your lunch hour, or simply going off for a wander around a part of town you haven't yet visited. It raises the spirits, rouses adrenaline and, most of all, generates anecdotes you'll joyfully relate to others the second you get back. Adventure is what *Oblivion* does best; in fact, it does it better than any other game in recent memory.

There's a lot of fancy talk going around that the *Warcraft*s and *City of Heroes* of this world are bad news for the venerable singleplayer roleplay game – that the potential breadth of experiences in a persistent world filled with thousands of very real and very unpredictable other people dramatically outweigh what's possible from an offline game peopled by rather more rigid AI-controlled characters. This line of thought isn't without merit, but, as *Half-Life 2* attests, having a certain amount of a game's events pre-ordained by

expert designers offers a polished and memorable experience an infinite number of 13-year-olds LOLing at you could never rival. *Oblivion* offers an almost perfect balance between the go-where-you-please ethos of a MMORPG and the scripted questing of a traditional, singleplayer RPG – you can indeed go where you please, and when you get there, you'll find a carefully arranged adventure or two to embark on. You don't have to do it; chances are half the other people who played through *Oblivion* never found it and more importantly, if you do attempt it, it's pretty much impossible that anyone else ⬊

ON THE DVD

>> Screenshot gallery

BUY THIS IF YOU LIKE...

>> Deus Ex
Eidos
>> Vampire: The Masquerade – Bloodlines
Activision
>> Thief: Deadly Shadows
Eidos

Hell on Earth
Your plot, should you choose to accept it…

You must close the Oblivion Gates (which lead to straight to Hell, incidentally) that are springing up all over the land. The Emperor has been murdered, and unless his Amulet of Kings is found, the show's over. You're free to perform these tasks as and when you want, or even not at all.

who did find it tackled it in quite the same way as you.

BOAT RACE

Here's an example. The Slightly Famous Adventurer (a custom character class *PCFormat* created, a jack-of-all-trades fusion of thief, swordsman and healing-specific mage) Ento, is knackered. He needs a kip, sharpish (to be specific, when the time comes to level up your character, you do so by finding a bed and resting). Wandering around the seedy Waterfront area of the sprawling Imperial City, he stumbles upon an inn on a sailing boat; it's a little insalubrious, but it sounds different – fun, even. 10G is handed over for a room on the lower deck, and eyelids are duly shut for a few hours. Upon awakening, Ento starts heading for the exit, only to bump into a rather large, unmistakably angry man. He's angry because he and his fellow brigands have just stolen the ship-inn and headed off for uncharted waters, having been convinced there was no-one else on it except for its owner and his bodyguard, both of whom are locked up

The parallel dimension behind the Oblivion Gates is no picnic.

Bloodthirsty goblins – so very rarely up for a chat.

You can join different factions, but you could find yourself joining a war.

elsewhere on the boat. So stumbling across a surprised Khajiit (the cat-like race Ento is a member of) with a big magic sword isn't really a good thing.

Needless to say, Ento slaughtered his way through the bandits with great gusto, freed the captain and headed back to shore, though he could have tried talking the brigands out of it if he'd concentrated more on developing his people skills rather than his hitting-things-and-breaking-into-houses abilities. But this anecdote is typical of what makes *Oblivion* great; if Ento had gone to one of the dozens of other inns in the world instead, the whole thing would simply never have happened.

In all honesty, *Oblivion* doesn't actually offer the living, breathing world that early hype promised – that adventure occurred because it was triggered when Ento walked onto that boat, not because it just happened to coincide with the moment that bandits decided to steal it. The game's as scripted as any other, but the crucial difference is you don't encounter those scripts in an even remotely linear order, and you'd have to play the game through at least five times to find them all. More to the point, it usually doesn't feel scripted, so long as you don't over-analyse the whys and wherefores of what's happening.

A VOYEUR'S DREAM

To anyone who played *Morrowind*, the last *Elder Scrolls* title, the freedom of action *Oblivion* offers won't come as any great surprise, but to be honest we're preaching to converted if you are a devotee of the last game. But even though it's the more casual breed of roleplayer that this review is directed at, even old hands will be taken aback by the degree of polish, tightening up and coherency *Oblivion* has over its prequel. Take NPC behaviour – rather than simply lurking inside their houses until you find

Five-finger discount

One of *Thief 3*'s developers worked on *Oblivion,* and it shows

1 In *Morrowind*, you could walk into a pub and then someone would loudly announce that he's in the super-secret Thieves' Guild, and would ask you to join. Here you have to sleuth your way to the guild, piecing together clues and bribing informants. Eventually, you hear about a midnight rendezvous.

2 Anyone can be pick-pocketed and any house broken into in *Oblivion*, but you can't sell any 'hot' property you've half-inched, as honest traders aren't interested in relieving you of your dodgy goods. If you're in the Thieves' Guild, though, you'll know where to find willing fences.

3 Stealth plays out like a basic, and often trickier, version of *Thief*: you need to move slowly and stick to the shadows, to stay out of sight while guards patrol. Lockpicking, meanwhile, involves a mini-game that's a much a test of your dexterity as it is your character's security skills.

The dilemma
In front of this nasty chap is a mystical tome you need to retrieve. Of course, if you just saunter up and grab it, all hell breaks loose, as his berobed brethren aren't terribly ready to part with it. So, what to do?

Option 1
Gently does it. If your sneak skill is up to scratch, you can tiptoe behind the back of the big statue, release the sacrificial victim just in front of it as a distraction, grab the book during the confusion, then disappear back into the shadows.

Option 2
If you're a mage who's focused on the Restoration and Alteration spell trees, you can summon magic armour and, shielding yourself, leg it up to the altar, grab the book and don't stop running until you see daylight, casting heal spells on yourself all the way. Alternatively, if you've bulked up on conjuring, you can summon a zombie or two for crowd control.

Option 3
Grab yer chopper and start, well, chopping. Men in sackcloth can't be that tough, right? Well, they can if they can fire lightning bolts from their hands and summon magical armour around themselves. You'll need to be a warrior type to pull this off.

Option 4
None of the above. *PCF*'s character Ento is something of a jack of all trades, and thus did a few *Splinter Cell*-style silent kills, grabbed the book, fought off a few of the attackers, then magic-shielded himself to escape the rest once the odds became overwhelming. The point is that you can approach this dilemma in a way that's reasonably unique to your own style of play.

> "In-game combat is a very random, clumsy process"

them, or wandering a looped path around the streets, they'll stop and chat if they bump into another AI character. The conversation's a bit stilted, but will be about a local personage of note, recent events in the world (usually related to any of the storyline quests you've completed) or even offering opinions on various shops about town. Follow one around and maybe you'll see them go off to work in the fields, visit church to pray or even pickpocket another character. It's simple, largely looped and sometimes unconvincing, but if they took the *Warcraft* approach of being forever rooted to the same spot, waiting for you to come looking for a quest, *Oblivion* would be a far lesser game for it.

All that said, though the world offers so many things to do, the actual act of doing them is often a far less impressive matter. Combat is a random, clumsy process – a weird fusion of your character's skills, frenzied button-clicking and luck. It's telling that there's a specific function that enables you to apologise to a friendly character you've just bashed around the chops with your axe. It's not there in case you suddenly change your mind mid-murder, rather it's because NPC allies will regularly end up

between your flailing axe and the goblin it's intended for.

HELLO, SQUIRE
That three out of five male NPCs are performed by the same ropey voice-actor also shatters the illusion slightly, as do the limitations of the graphics engine. For every gorgeous forest populated with vibrant flora, there's a mountain in the background that looks like it was rendered on a Voodoo 2. Anyone with less than an X1900XTX or 7900GTX 3D card is going to have to compromise on graphics, and even PCFormat's ninja test rig couldn't

Your success in the game depends on which skills you've worked on.
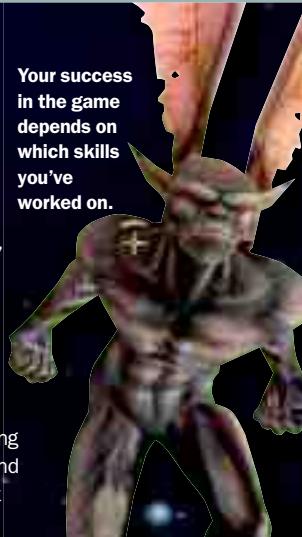
cope. That said, there's plenty of room for a fan-built high-res texture pack.

But here's the rub of it – this is the *Half-Life 2* of roleplaying games. Sure, *Baldur's Gate II* and *Planescape: Torment* have offered far superior storylines, but here, the core plot is optional, while the sense of freedom knocks everything else into a chainmail helmet. In the same way that *HL2* raised the standard for first-person shooters last year, this is the new benchmark for RPGs, both offline and online, seamlessly blending the traditions of the genre with the best elements of immersive sims like *Deus Ex*. You can keep your 40-man raid dungeons and your giant space trading corporations – *Oblivion* is a world well worth living in. **Alec Meer**

Self-improvement
A brief guide to levelling up

There are no experience points here – hit a lot of things with swords and you'll become a better swordsman. Your class dictates which abilities you have an aptitude for, but this doesn't preclude you from developing others. After a while, you can level up, and improve your core character specs.

Needs 2GHz CPU 512MB RAM, 128MB 3D card

Wants 3Hz CPU 1MB RAM, X800/6800 3D card or better

Net gaming None

Discuss pcformat.co.uk/mag/oblivion

93% **PCF says...** "The 21st Century's finest, most involving roleplaying game so far."

Replaying goals from different angles gives you a better view of your triumphs.

The feeders are still in evidence in the familiar tactics screen.

The new camera angles make it easier to keep track of the whirling yellow blob.

WIN, LOSE OR YAWN

Championship Manager 2006

It's time to reach for the sheepskin coat once again, but is this latest outing more Wayne Sleep than Wayne Rooney?

Price £30 **Publisher** Eidos **Developer** Beautiful Games Studios **Web** www.championshipmanager.com

Nostalgic football fans will tell you that *Championship Manager* the oldest footie management series in circulation, and as such the brand still holds many happy memories for its stat-hungry fans. Recovering from the original game's 10% score in unlucky issue 13 of *PCF*, the franchise went from strength to strength. That is until last year, when Sports Interactive left the development team, and the brand slipped into mid-table mediocrity.

CM was playing catch-up to SI's *Football Manager,* which sport crisp, clear in-game action, club badges and player pictures. *CM2006* has none of these niceties and essentially still feels a bit like a season update for *CM4.*

It is incredibly fast, even on a low-spec machine, outstripping *Football Manager*'s sedate trundle, but this somehow counts against it. Management sims have never needed to be fast-paced, indeed the time your PC spends thinking adds to the illusion of time passed in the virtual world. Because *CM2006* plays normally while processing data, however, your next match seems to appear almost as soon as the ref's blown the final whistle in the

previous one, lending in-game progress an air of unreality.

WHEELER-DEALING

There doesn't seem to be much different from *Championship Manager*'s previous outing, apart from the ability to respond to player concerns and a bit more text in the match and scouting reports. The transfer system has also been slightly tweaked, feeding in more real-world football bureaucracy, plus your board now interjects more in the day-to-day running of the business. These changes

have limited impact on your gaming experience, though.

The big change arrives on matchday itself, which is where *CM5* crumpled in an untidy heap on the turf. Graphically, it's improved, with the pitch and *Subbuteo*-style players rendered in multi-angle 3D. The game engine has been vastly improved, too. In the lower leagues the yellow ball bounces off your players like their legs really were plastic, but as you climb the divisions, you can anticipate silky, Arsenal-style moves.

Despite manifold improvements, *CM2006* is unlikely to make anybody playing *LMA* or *FM2006* change codes. The game engine, although updated, doesn't compare to SI's, and visually, *LMA* thrashes it. **Dave James**

Let's see that again
Turn useless cloggers into world-beaters

Check a few boxes in the Highlights menu and you can configure a post-match showreel to suit your needs. Fancy cruelly exposing your defenders' frailties, or reliving your team's shots on goal? Not a problem; who cares about defensive lapses when you're filling the onion bag regularly, eh?

Needs 1GHz CPU, 256MB RAM, 8MB 3D card

Wants 1.5GHz CPU, 512MB RAM, 16MB 3D card

Net gaming None

Discuss pcformat.co.uk/mag/champman06

71% **PCF says...** "A definite improvement, but will surely struggle for honours."

EUROPHOBIC
Battlefield 2
Euro Forces Booster Pack
Even the Americans need help saving the world sometimes…

Price £6 **Publisher** EA **Developer** DICE **Web** www.battlefield2.com

A Challenger 2 tank can lend a lot of force to your argument. Via a 120mm cannon.

Oh, how this kind of treatment gets under *PCFormat*'s cover. We understand that EA has a delivery platform to push here (the imaginatively titled EA Downloader) and for that it needs to make content available to download, but for the love of Chuck Norris, at least it could have made some effort.

Euro Forces offers a handful of armour and aircraft, some guns and a smattering of gear. Fair enough, we weren't expecting a full expansion. But ask yourself: why will people want *Euro Forces*? To play with European kit of course. So why is the titular force driving Hummers and wearing US Military helmets? Could it be… no, DICE wouldn't… it's not just a cheap skinning job, surely…

SKINNED ALIVE
There are new models, Challenger 2s and Euro Fighters aplenty and, why, there's even a Para's red beret, but we've all seen an SA-80 before and slapping a UGL on it doesn't impress. Sticking feathers up your bum does not make you a chicken, as someone once said, and an incongruous ring of stars on the arm of a US uniform won't make you one of Her Majesty's finest.

Alas, the best thing is the maps. All three are well balanced and offer stunning views (giant oil tanks belch thick smoke across one, and a medieval citadel within the Great Wall of China in another), but there's nothing that a) we didn't get in patches for *BF1942* and b) couldn't be done by a mod team over weekend of tea and biscuits for free. Asking us to pay for this is cynical, especially when it's not even the 'Euro' booster it claims to be.   **James Carey**

BUY THIS IF YOU LIKE…
>> **Banging your head against a brick wall**
   DesperateGames
>> **BF2: Special Forces**
   EA
>> **BF1942: Secret Weapons**
   EA

Perhaps this was originally to be *BF2: Safari*. Ah, the majesty of the Serengeti…

Needs 2GHz CPU, 512MB RAM, 32MB 3D card

Wants 3GHz CPU, 1GB RAM, 128MB 3D card

Net gaming LAN, internet, 64 players

50% **PCF says…** "*BF2* is an awesome game, the score is for the cheap and nasty add-on."

Etrom The Astral Essence
Price £20 **Publisher** PM Games **Web** www.etrom.net

Imagine if some crazed, shock-haired scientist were to put you in a time machine, take you back about seven years, and then make you play a crappy techno-gothic *Diablo*-clone RPG. That would be really annoying. And weird. Well, save yourself all the headaches of time travel by playing *Etrom* today!

Or don't, which would be more sensible behaviour. Amateurish and clumsy, *Etrom* is certainly huge, but remember, a very big pile of poo isn't better than a small one.

Especially if you fall in it. It's functional, but the combat is archaic and awkward, and the dialogue more embarrassing than calling your teacher 'mum' in front of everyone.

Needs 1GB CPU, 256MB RAM, 64MB 3D card

Wants 1.5GHz CPU, 1GB RAM, 128MB 3D card

Net gaming None

49% **PCF says…** "The usual amateurish nonsense."

Onimusha 3
Demon Seige
Price £20 **Publisher** Ubisoft
Web www.capcom.com

Onimusha 3's dubious plot is instantly forgiven by the sudden appearance of Jean Reno, guns ablaze, on a Harley Davidson. The *Leon* star joins Samanosuke, the original *Onimusha* warrior, in a bid to save Paris from demons. Despite this enthralling premise, its console origins are horribly apparent – it's dogged by a clunky interface, frustrating controls and repeated mentions of green triangles and pink squares, which is just beyond sloppy. Still, the cutscenes involving the obliteration of Parisian landmarks by giant insects are great.

Needs 1GHz CPU, 256MB RAM, 128MB 3D card

Wants 2GHz CPU, 512MB RAM, 128MB 3D card

Net gaming None

60% **PCF says…** "Highly implausible, but not entirely fun-free."

Shadowgrounds
Price £30 **Publisher** Reef Entertainment
Web www.shadowgroundsgame.com

These days, shoot 'em-ups are restricted to 3D FPS games and the odd shareware effort. Frozenbyte, the developer of *Shadowgrounds*, has taken the old-school top-down shooter and added modern 3D effects. The title holds the clue to the game's insidious, claustrophobic atmosphere. Creeping along dark corridors with your torch bouncing around, throwing claw-like shadows on the walls really plays tricks on your mind.

Reminiscent of the Amiga classic *Alien Breed*, and borrowing heavily from *Aliens*, this captures the tension and xenomorph-blasting joy that modern shooters often fail to grab.

Needs 1.5GHz CPU, 512MB RAM, 64MB 3D card

Wants 2GHz CPU, 1GB RAM, 128MB 3D card

Net gaming None

79% **PCF says…** "It may be unoriginal, but it's got the atmosphere."

The early stages are mostly logic puzzles.

If our hero's exposed to one too many grisly sights, his grip on reality is loosened.

There's no targeting recticle, so taking down the bizarre monstrosities you face can get decidedly tricky.

BLOOD-CURDLING ACTION

Call Of Cthulhu
Dark Corners of The Earth

It's the dark corners of the lead character's shattered psyche that you'll have to worry about most here

Price £35   **Publisher** Ubisoft   **Developer** Bethseda   **Web** www.callofcthulhu.com

You have to admire a game in which the hero is subject to the same fears as real people. Take Jack, whose part you play in *Call Of Cthulhu: Dark Corners Of The Earth*: he struggles with heights. When you're halfway up a ladder looking down, your vision begins to swim; the more you look at the ground, the worse it gets. Check out the in-game footage on our coverdisc, and see for yourself.

In fact, fear of heights is just one of many adverse mental states poor Jack is subject to. Based loosely on *Shadow Over Innsmouth*, by classic-era horror novelist HP Lovecraft, there's a heavy supernatural element. But that doesn't do it justice – you actually see some pretty horrid stuff, be it bizarre, slobbery beasts, or grisly scenes of murder, brutal violence and human sacrifice. And every time you do, Jack's sanity takes a hit. Initially, this manifests itself as dizziness, with wobbly, zoomed-in visuals that make things interesting – especially in a firefight. If you go about exposing yourself to nasty sights, Jack starts whispering to himself and hearing voices. And if you totally overdo it while holding a loaded weapon, there's even

the possibility of suicide. These tangible manifestations of terror give the game an emotional credibility that few muster; this isn't just in-game characters screaming, it's *you* feeling the fear.

FRIGHT NIGHT
This is no simple FPS: for the first few levels, there's no gunplay at all; it's all stealthy sleuthing, puzzle-solving and combat avoidance. After this, there's plenty of fairly hairy bullet-chucking to be done. But the reason to buy this game is for the superb story, and the way it

ON THE DVD
>> Screenshot gallery
>> In-game video

BUY THIS IF YOU LIKE...
>> **F.E.A.R** Vivendi
>> **Alone in the Dark** Interplay
>> **Resident Evil** Capcom

You must be mad
Is our hero bent in the head?

The game begins with a scene from Jack's past, in which he encounters something so utterly hideous, he spends the next six years in an insane asylum. After this, the real adventure begins. So, as the game starts, Jack's grip on sanity is already less than tight. Good luck keeping it that way...

gets you involved on an emotional level. It's fair to warn you that the engine is a wee bit ropey; pretty much what you'd expect from a multi-format release, and a game that's been picked up and dropped by various publishers for the last six years. But the attention to detail elsewhere is superb. It evokes *Alone In The Dark*, the original survival horror game, another title inspired by Lovecraft's *Cthulhu* tales.

Adventure games are scarce these days; good ones doubly so, and despite the underwhelming engine, *Dark Corners Of the Earth* is a joy to play. Every scene is distinct from the others, there are startling set-pieces, and you're compelled to finish it. In today's world of sequels and recycled ideas, that's a rare, beautiful thing.   **Al Bickham**

Needs 1GHz CPU, 256MB RAM, 128MB 3D card

Wants 2GHz CPU, 1GB RAM, 256MB 3D card

Net gaming None

Discuss pcformat.co.uk/mag/cthulu

82% **PCF says...** "When a game is this gripping, who cares about a slightly cranky engine?"

The on-bike shootin' boasts plenty of gratuitous explosions.

Go ahead, make her day.

LADY KILLER

Tomb Raider
Legend

The Wonderbra Woman has survived spikes, spectres and appalling sequels. Could this be the end at last?

Price £35 **Publisher** Eidos **Developer** Crystal Dynamics **Web** www.tombraider.com

Lara Croft – putting the 'pro' in 'proportionate'.

Much as we hate to support yet another colon-and-daft-strapline in a game title, this one's bang on the money. Lara *is* a legend, the face that launched a thousand PlayStations, illustrated almost as many hugely uninformed newspaper articles about computer gaming, and inspired only a few less witless essays about feminism.

Most importantly for legend status, she's also dead: ritually, horribly assassinated by the sheer awfulness of *Tomb Raider: Angel of Darkness* with a bit of post-mortem grave-watering coming from Ms Jolie et al – we were expecting

ON THE DVD
>> Screenshot gallery
>> In-game footage

BUY THIS IF YOU LIKE...
>> **Prince of Persia: Two Thrones** Ubisoft
>> **Tomb Raider** Eidos
>> **Second Sight** Codemasters

an undignified retirement as student wall decoration circa 2015. Unsurprisingly, Eidos has decided that it likes the feel of money too much and that she's getting another crack of the not-at-all-like-Indiana-Jones-honest whip. Astonishingly, it's rather good fun.

WHIP CRACK AWAY
For starters, she looks amazing. The minimum system requirements might be calculator-level, but the top end will make your graphics card burst into flames; you can genuinely zoom into to inspect the results of inadequate Clearasil use on Lara's face. Set the detail to something saner and it still looks fantastic, with the requisite tombs, jungles and suspicious military installations rendered in marvellous detail. Smoke trails from your gun barrel, Lara is visibly soaked when she gets out of water, and the animation as she bounds from one unsafe structure to another is spot-on.

More importantly, she's a genuinely likeable character. While the plot is predicable B-movie tripe (lost parents, betrayal of friends, Arthurian legend, blah blah) with a staff direct from Central Casting; the dialogue sparkles, the voice acting is excellent, and just about

everybody is hugely appealing. Lara comes across as the sort of well-bred, hugely charismatic and slightly insane aristocrat you'd like to spend time with even if it meant dangling over a pit of spikes, and even her wisecracking sidekicks are borderline entertaining. To find yourself warming to an in-game character, particularly one as… ahem… over-exposed as Lara, is a rare thing.

What she actually gets up to is a bit more traditional and consequentially

"She's the face that launched a thousand PlayStations"

less exciting, but it's still very impressive. Tombs remain filled with conveniently placed poles, crevices and scalable walls for Lara to fling herself between, and traps are fiendish enough to kill you; but not so much that they can't be circumvented with a convenient crate or two. The acrobatics don't quite have the seamless elegance of *Prince of Persia*, but they're close, and the puzzles take a small but significant step above the norm by being properly physics-

The lady in the lake
Scientific progress meaningfully applied

The detailing in TR:L is stunning. Problems only arise if you don't have a super CPU (which means you can't run top-level effects) or if you have a girlfriend (in which case you can't reasonably explain why you keep getting Lara to jump in and out of the water so you can see what she looks like wet).

Early disco lighting was primitive at best.

based. They're still very simple affairs, but it's a neat extra dimension, and having inexplicable big stone balls that roll properly, and impromptu rafts that float realistically make it a much more convincing environment.

There's still room for improvement, mind. A slightly more forgiving control system would have been nice – now we're used to the Prince's clinically precise positioning, it's a bit tiresome having to leap in the just the right direction to grab a rope, and the slightly twitchy controls give just a few too many

chances of misjudging something simple and plummeting to your death. The puzzles aren't always very simple either; there's a neatly integrated cheat in the form of the scanning mode on your binoculars, but it's still too easy to miss something significant and waste huge amounts of time leaping around trying to find something that's moveable, grabbable, or explosive.

NO HAIR-PULLING
Combat is a more regrettably mixed bag. Granted, though, there's not much of it. The physics engine means the explosions are very pretty, and it does somehow manage to make bullet-time slo-mo look cool rather than horribly derivative, but it's still the same sloppy third-person shooting we know and hate from the likes of *GTA*. Also flagged for return to the drawing board is the new

high
score
PCFormat

rhythm-action element; occasional interactive cutscenes that demand you press the right button to continue. Someone's obviously trying to add a spot of personal involvement to a shamelessly dramatic setpiece, and they almost pull it off but they're so rare and poorly-advertised that you invariably perish before you've worked out you're still supposed to be playing.

We'd really like to say that these are just minor blemishes on an otherwise triumphant resurrection, and for the first two-thirds of the game (about six hours) they are. Then, there's a sudden disastrous drop in quality, starting with an unbelievably tedious and pointlessly hard boss fight, swiftly followed up by some tiresome closing levels that sqaunder all previous goodwill and feel as though they've been thrown together in the last minute to bring the total time up. It's a real shame to see such a promising opening go downhill so quickly, and we can only hope it's the last-minute botch up it appears to be, rather than the developer's idea of a wholly satisfying denouement.

For now, rest assured that the legend is back and holding her own against the Persian threat, and while she's not quite back on top form, we're far more optimistic about the inevitable next instalment then we have been for a very long time. Let's just pray that they don't rush it. **Jon Hicks**

She gets around
Where in the world is the demented posh lady?

1 Being a high-born society type, Lara can hob with the nobs in this Tokyo apartment – before producing twin guns from somewhere in her capacious suspenders and blowing away some bloodthirsty yakuza types.

2 In a neat nod to *Max Payne*, there's a short trip through an abandoned theme park – Camelot-themed, of course. Make sure you listen through all the terrible animatronics to annoy your support squad.

3 The view over the top of a Russian military installation is always a must-see, although as we're all now comfortably post-Cold War you're tasked with rescuing the Spetznaz, rather than, say, slaying them mercilessly.

Needs 1GHz CPU, 256MB RAM, 64MB DirectX 9 3D

Wants 3GHz CPU, 1GB RAM, 512MB 3D card

Net gaming None

Discuss pcformat.co.uk/mag/tombraider

80% **PCF says...** "A successful resurrection, but not quite worthy of legendary status."

It's turn-based, role-playing, resource-gathering warfare, but not as we know it.

CONFUSED RPG

Spellforce 2
Shadow Wars

It's neither an RTS, nor an RPG. And it's not much fun, either

Price £30 **Publisher** JoWood **Web** www.jowood.com

This game may well be suffering from a personality disorder. You create a character. and are then immediately paired up with two heroic companions. Your party gains XP for kills and completed quests. A basic upgrade

Even if an NPC tells you the coast is clear, don't trust him. The AI here is very poor.

tree lets you focus on combat, magic or both. Stats and rolls are all hidden, with mana and health point boosts mysteriously provided by the items you equip. So, you're running around smacking wolves, delivering letters, and warning of impending doom in the most clichéd story of living memory, when you turn a corner and it suddenly pronounces itself an RTS.

You need to construct buildings, farms, blacksmiths and so on. Next, your group takes on the 'hero' role of the RTS – powerful units who must be kept alive. And the flip-flops don't stop there.

ARTHUR OR MARTHA?
Despite the RTS half being the more involved, murderous AI ensures any potential is constantly frustrated. An entire afternoon was wasted early on: after taking out the defensive towers of enemy encampments, an AI companion

pronounced the way ahead safe, and marched the units you're meant to keep alive head-first into the opposing army. Three battles in a row. Not good.

Both sides of this game are woefully compromised. While there are more units and a series of skirmish and multiplayer modes as well as the main campaign, none satisfying our gaming desires. *SF2* needs to decide what it wants to do, and then do that properly – while bearable, *Spellforce 2* offers nothing that hasn't been realised much more fully elsewhere. **John Walker**

Needs 1.5GHz CPU 512MB RAM, 128MB 3D card

Wants 2.5GHz CPU 1GB RAM, 256MB 3D card

Net gaming LAN, multiplayer

62% **PCF says...** "Tries to include facets of two genres, and feels confused and compromised."

TOMMY AND JERRY

Blazing Angels
Squadrons of World War II

Scramble! Cabbage crates over the briny!

Price £30 **Publisher** Ubisoft **Web** www.blazing-angels.com/uk

With great graphics comes great responsibility. Play *Blazing Angels* on a half-decent rig and it's easy to become captivated by the dozens of aircraft circling in the gorgeous sky, the bright lances of

Performing dangerously low strafing runs is thrilling, visceral fun. Whee!

machine gun fire, and the tumbling ochre wrecks. Thing is, every time, the atmosphere is shattered by your radio piping up, subjecting you to the crackly taunts of pantomime Germans or Japanese (highlights include "I vill turn you into ze cheese zat is Swiss") or yet another quip from your profoundly irritating wingmen.

MENTION THE WAR
This is a decidedly arcadey experience. Kills are racked up in the hundreds, dropped bombs magically re-appear under your wings and your allies are invulnerable most of the time.

The first problem you'll encounter is the controls, which bear all the hallmarks of a botched console port. If you don't have a joypad, flying will be something of a trial.

The fact that the game's not that much fun is a far bigger problem. The

Your plane can take a serious pounding and even catch fire, but will it crash? Well, yes.

mainstay of the game is shooting things with your machine gun, circling to be able to shoot things with your machine gun and circling harder to stop people shooting at you with their machine guns. There's little depth, besides a multiplayer mode, and that circling, shooting, bomb-dropping 'action' will soon grate. Simplicity doesn't work when the basic game is this mediocre. **Quintin Smith**

Needs 1.5GHz CPU, 512MB RAM, 64MB 3D card

Wants 2GHz CPU, 1GB RAM, 128MB 3D card

Net gaming Up to 16 players

71% **PCF says...** "Photogenic arcade action lacking in any real long-term appeal. Wafer thin."

The level-up system requires you to stop terrorising local businesses and shooting people, and bump up your stats.

The Godfather

A licence you're simultaneously desperate to play, yet fear what you might discover when you do

Price £30 **Publisher** Electronic Arts **Developer** In-house **Web** www.godfathergame.com

Pacino decided to steer well clear of *The Godfather* game. Having played it, we can't really blame him.

There's no denying the impact that the third *Grand Theft Auto* had on the videogame market; suddenly games were fun even if you weren't actually involving yourself in the main missions. Great design will always inspire imitation, and while some titles have taken the freeform idea and built upon it, such as the leisurely downtime in *Fable*, some have missed the mark entirely, like *The Godfather*.

Simulating a frustratingly small section of South Manhattan as well as tiny parts of Brooklyn and New Jersey, *The Godfather* takes the film licence and characters and tries to recreate *GTA* in the 1930s. You're an aspiring wiseguy trying to worm your way into the affections of the Corleone family, carrying out missions for the mob in parallel to the stories set out in the film. Basically this involves a lot of running around the poorly drawn cityscape gunning down or beating up various members of the populace.

Between the missions, you can keep yourself busy by hijacking trucks and extorting businesses, but essentially once you've jacked one haul of cigarettes you've jacked them all.

The problem is that there is nothing that really drives you on to explore the whole city. It's really quite ugly, and the blocks are literally, well, *blocks*, covered in grainy textures, and broken up by a few bland, near-empty alleys dotted around. The streets of old-time New York feel like a thoroughly repetitive maze, rather than a vibrant, violent city full of gangland violence and drama.

NEW JACK CITY
If you're after a game that captures the tension, style and menace of the original *Godfather* films then you'll be as sorely disappointed with this offering as we were. Coppola himself summed it up

Blowing stuff up while wearing a rakish fedora: now *that's* cool.

**BUY THIS
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 Ocean
>> **Gun**
 Activision
>> **Mafia**
 Take 2

Taking to the streets in period cars is nowhere near as fun as it should be.

quite nicely on US TV show *Sunday Morning Shootout*. After seeing a preview of the game he said: "They use the characters everyone knows ... and then for the next hour they shoot each other." After a few in the company of the finished game, his assessment sounds bang-on to us... **Dave James**

Needs 1.4GHz CPU, 256MB RAM, 64MB 3D card

Wants 2GHz CPU, 512MB RAM, 128MB DX9 card

Net gaming None

Discuss pcformat.co.uk/mag/godfather

63% **PCF says...** "Diverting mob brutality, but nothing like the films and downright ugly."

IT'S THE GERMANS

UberSoldier

Time-travelling Nazis, anyone? We thought not

Price £35 **Publisher** CDV **Developer** Berut CT **Web** www.ubersoldier.net

There only seem to be two types of villains that are deemed acceptable in games at present: the British, because we've still got residual guilt from the days of Empire, and the Nazis.

UberSoldier opts to feed countless members of the Third Reich into the

ON THE DVD
>> Screenshot
 gallery

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>> **Gene Troopers**
 Playlogic
>> **Halo**
 Microsoft

machine gun-powered man-grinder. Our protagonist is essentially a zombie (he lives, dies and is reanimated during the intro) but without all the fun staggering around and brain-munching that usually entails. The Nazis have apparently found a way to bring people back from the dead which also imbues them with psycho-kinetic powers. These special abilities consist chiefly of a shield that can pluck your bullets out of the air and fire them back at you. And that's all. It certainly doesn't add much depth aside from shielding you during sniper rifle reloads.

"Your character lives, dies and is reanimated during the intro"

WHAT TIME IS IT?
Unfortunately for the Ubermacht, a member of the Resistance breaks into the 'psychopathic hospital' just as you're waking up and, as hers is the first voice you hear, has you completely under her control (Nazi zombification technology works exactly

The temporal shield sucks in bullets. The benefit of this is unclear at present.

like love potion, obviously). You're then whisked off into a formulaic FPS action romp, and must halt the rise of your chaos theory-mangling brethren, minus the redeeming polish and set pieces.

It's as on-rails as *Medal of Honor*. You're funnelled down corridors and fenced off, open-air locales and told exactly where to go via the over-helpful compass and map, and you're even shown exactly what to pick up and operate thanks to the models flashing onscreen. All of which means the best thing is the lack of the British as cliched baddies. Nuff said.   **Dave James**

Needs 2.4GHz CPU, 512MB RAM, 128MB 3D card

Wants 3GHz CPU, 1 GB RAM, 256MB 3D card

Net gaming None

56% **PCF says...** "Leaves little up to the player apart from pulling the trigger. Repeatedly."

The guns mounted on the sub provide a welcome break from all that trudging.

CLUNKY CONFLICT

War on Terror

Bore on Terror would be closer to the mark

Price £30 **Publisher** Monte Cristo **Web** www.montecristogames.com

Reminiscent of puppetry pastiche *Team America*, *War On Terror* casts you as an organisation designed to maintain world peace. There's no satire here, though.

Because no self-respecting RTS can get away with one faction in civil war,
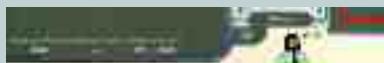
ON THE DVD
>> Screenshot
 gallery

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 Midway
>> **Hammer & Sickle**
 Koch Media

you'll also be able to step into the shoes of The Order (a sinister cadre who appear to be after everyone), the US and the Chinese, among overs.

SOLDIER ON
Whoever you command, *War On Terror* makes you push lolloping units around real-world environments issuing basic commands. It really ought to be more fun than it is, especially since a couple of ideas threaten to make the game compelling, but never quite deliver. For instance, an experience point system that lets you level up your troops, and should make you feel attached to your units in a similar way to *Cannon Fodder*. It's a shame that, having designed the game so that you care about your soldiers, they are so badly animated that they're almost unlovable.

With a restrictive mission structure that tells you, for example, precisely when to use your commander's detonation skills to progess, the game

The US Military's camper vans are lethal.

quickly slips into tedious, repetitve missions we've seen executed far better, dozens of times before. Worse still, there's a lack of conviction and a whiff of bandwagon-jumping about War on Terror, neither of which are desirable traits.

While there are plenty of missions, a pile of unit types and loads of multiplayer modes, we doubt that a limited game like *WoT* will hold your attention for long.   **Lee Hall**

Needs 1GHz CPU 256MB RAM, 32MB 3D card

Wants 2GHz CPU 512MB RAM, 64MB 3D card, broadband

Net gaming Eight-player online

54% **PCF says...** "A standard RTS with lots of bells and whistles – all of them out of tune."

If the game was less linear, we'd enjoy big set-pieces like this more.

HIGH-FLYING FURBALLS
Rebel Raiders
Operation Nighthawk
Planes that bounce off the ground…

Price £20 **Publisher** Nobilis **Web** www.rebelraiders.com

When it comes to shoot 'em-ups, you're never going to be blessed with the most in-depth storylines. It's corrupt governments, rebel alliances, insurmountable odds and all that.

Without a strong plot to hold it together, then, what can we expect? Glorious looks, thrill-a-minute action? Adrenaline-fuelled twists and turns?

The graphics aren't going to hook you; it looks like a hi-res expansion for *Terminal Velocity*. The important sensation of seat-of-the-pants dogfighting isn't there either. It feels more like shooting fish in a barrel with the ineffectual enemy aircraft firing only the very occasional missile that patiently sits on your tail waiting for you to press the dodge button.

Needs 1GHz CPU, 256MB RAM, 64MB 3D card

Wants 1.5GHz CPU, 512MB RAM, 128MB 3D card

Net gaming None

45% **PCF says…** "Repetitive missions, ropey graphics and passive enemies."

"Yankee doodle, floppy disk…"

WHITE-KNUCKLE RACER
Trackmania Nations
Too fast! Brain… can't… cope…

Price: Free **Publisher:** Nadeo **Web:** www.trackmanianations.com

top gear PCF Format

Should you be someone who gets travel sick, then this may not be the game for you. Building on the thrills and spills of *Trackmania Sunrise*, this free version has been released to coincide with the Electronic Sports World Cup.

You can't race against physical opponents, so you can't bash them off the many ludicrous jumps and corkscrews that litter most tracks, but it's impressively speedy and there are live ghosts to give you an idea of how you're doing and where others are failing.

While some might moan about only having a single car available, there is an infinite number of actual tracks to race thanks to the circuit editor that comes bundled with the download. You can practice with the 90 training levels and race against another player's ghost in the Hot Seat mode, but it's taking the game online where the fun really starts.

Needs 750MHz CPU, 256MB RAM, 64MB 3D card

Wants 1GHz CPU, 512MB RAM, 128MB 3D card

Net gaming LAN/internet

80% **PCF says…** "You'll love it. *Micro Machines*-style fun in glorious free 3D."

If only Silverstone looked like this.

Maximum Football
Price £24 **Publisher** Matrix
Web www.matrixgames.com

Nowhere is the general American idiom of 'bigger is better' more apparent than in their interpretation of football. Any sport where the squad numbers reach up into the 70s has a size problem.

Being able to construct your own leagues and plays while playing as any team, directly or through coaching, should give you the scale that such a sport deserves. Unfortunately the matches here are painful, with rendered lumps shuffling like pensioners.

Needs 1GHz CPU, 512MB RAM, 128MB 3D card

Wants 1.5GHz CPU, 1GB RAM, 256MB 3D card

Net gaming None

42% **PCF says…** "Desperate for gridiron? Get *Madden* for £15"

Hearts of Iron II Doomsday
Price £15 **Publisher** Paradox
Web www.paradoxplaza.com

This game is most definitely not one for the faint-hearted; the sheer scale of the beast is truly something to behold. As a standalone expansion you don't need the original game to play, but some knowledge of it will save you hours of trawling through both the tutorials and the manual. Extending the timeline past the end of WW2, you are now able to develop some serious weapons of mass destruction like the tactical nuke.

Needs 800MHz CPU, 256MB RAM, 16MB 3D card

Wants 1.4GHz CPU, 512MB RAM, 32MB 3D card

Net gaming LAN/Internet

72% **PCF says…** "A re-release with new campaigns. Worth a look."

Great Invasions
Price £20 **Publisher** Nobilis
Web www.great-invasions.com

Invasions not make one great, as some small, green, gramatically experimental Jedi master would say. Neither do unpleasant strategy games, so Nobilis is well out of the running.

If you took the graphical splendour, diplomatic nouse, brutal battles and fun out of the *Total War* games you might end up with *Great Invasions*. It's an awkward strategy game that tries to step out of the turn-based frying pan and ends up in the unplayable-pap fire.

Needs 800MHz CPU, 256MB RAM, 64MB DX8.1 card

Wants 1.6GHz CPU, 512MB RAM, 128MB DX8.1 card

Net gaming 4 players, LAN or internet

35% **PCF says…** "Pick up *Rome: Total War* for the same price."

Spongebob Pack
Price £10 **Publisher** THQ
Web www.focusmm.co.uk

You've got to love a world where a marine biologist can give up his day job and create a wildly popular children's cartoon. Both titles in this double pack capture the feel of the show brilliantly.

The older game, *Operation Krabby Patty*, does have dodgy FMV, but *Battle for Bikini Bottom* makes up for it with nicely rendered, though low-res, graphics and great variation. The controls are intuitive and perfect for a young child, or enthusiastic parent…

Needs 400MHz CPU, 128MB RAM, 32MB 3D card

Wants 800MHz CPU, 256MB RAM, 64MB 3D card

Net gaming None

77% **PCF says…** "If your child is a fan, this offers hours of fun."

PCFormat workshops

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ON THE DISC Please note that not all the programs mentioned in Workshops are on the CD edition of PCFormat. Check page 6 for more info.

THIS MONTH

100

›› VIDEO
Make a music video
What with the onslaught of video enabled phones, every mug with a mobile has the opportunity to become the next Chris Cunningham. Even if you are just adding a Spice Girls track to a clip of your latest bout of happy slapping, *Muvee autoProducer*'s automated editing features will turn it into a MTV-worthy promo in no time.

104

›› PHOTO
HDRI rendering in photos
If you saw the frighteningly realistic photo of a Combine soldier breaking in on our noble City 17 correspondent last issue, you may be wondering how we managed to match the lighting so realistically. We'll let you into a little secret – it involves shiny silver balls. Should you wish to learn how to combine 3D models and photos yourself, read on…

106

›› WIN XP
Put XP on an Apple Mac
Yes, while it may sound like bare faced blasphemy, we've had the *PCF* sweatshop working away at instructions for installing Windows XP directly onto one of the swanky new Intel Macs. These machines have had our mouths watering for months and finally artful hardware design can be joined with all our favourite apps in a glorious-yet-debauched tryst.

108

›› AUDIO
Alive WMA MP3 Recorder
Recording songs from the radio used to be the preserve of the cassette-clutching teenagers, but no more. With a decent internet radio station and this useful recording app, you'll have saved copies of your top tunes in no time. You can even set timers if you're out when your favourite show is on. Don't you just love technology?

PLUS

110 ›› GAMES
Continuing our *Blender3D* tutorial from last month, we teach you how to add a body to that head. Games Ed James was looking a mite peaky *sans* torso, but he's now healthily running around like a spring lamb.

112 ›› GRAPHICS
This tutorial will explain how to create a submarine in the nifty modelling program *Realsoft 3D*. Don't be fooled by the fact you've never heard of the app before, its modesty belies a high-quality toolset for creating and manipulating shapes.

114 ›› GAMES
In the final part of our *Battlefield 2* mapping guide, we impart the vital tips to elevate your shoddy field in the middle of nowhere into an all-singing, all-shooting warzone. With ambient sounds, fancy lighting and special animations, your levels will have that final gloss that should lift them beyond others' amateurish efforts.

116 ›› GENERAL
Ever wanted a fancy Flash website, but been lacking in the technical nous to create one? Well despair no more, because *A4Desk* will help you create something striking and interactive for your homepage with a minimum of effort.

Workshop

James Morris asks if mobile phones will ever make viable alternatives to full digital camcorders

Today's mobile phones are still pretty poor video cameras. Even if the still image capabilities have reached two megapixels and beyond, video quality languishes at pre-webcam resolutions. The 3GPP formats are aimed more at low data rates suitable for transmission over mobile data networks than downloading to a PC for editing. And with decent-quality video requiring many megabytes of storage, your phone won't be ousting your digital camcorder just yet.

A CAMCORDER FOR EVERY POCKET

JVC's GZ-MC500 can store an hour of high-quality MPEG-2 video on its 4GB drive.

But the writing is on the wall for bulky, tape-based models. JVC's Everio MC range was launched a couple of years ago and pioneered the idea of a real camcorder you could fit in a trouser pocket, using a dinky Microdrive to provide 4GB of storage. The MC500 remains a storming performer, with three CCD optics and five megapixel stills. In late 2005, Panasonic launched its SDR-S100 in retaliation. This also offers a trio of CCDs, but uses a 2GB SD card.

Panasonic's SDR-S100 uses solid-state Secure Digital cards.

Although aimed at stills, Sanyo's Xacti HD1 shows what could be around the corner. At less than 5in tall and 1.4in thick, it isn't much bigger than a phone, yet it can record video at 720p. Using MPEG-4 compression, it can squeeze more than 40 minutes on a 2GB SD card. Ever-shrinking components mean that high-grade video capabilities alongside mobile telephony is getting steadily closer. Just as mobiles are starting to take passable photos, expect to see acceptable video on your handset in the near future.

Sanyo turned heads at CES 2006 with its high definition video Xacti HD1 palmcorder.

**Have your say** forum.pcformat.co.uk

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Imported video
The video and still images you capture or import will be listed here, with icons to help you remember which file is which.

Imported music
You can bring in multiple music files to use as the soundtrack for your *Muvee* movie. Each one will be listed here.

Muvee styles
The styles gallery sits at *Muvee autoProducer*'s hub. Choose the style you want to apply to your edit – it will appear in the box on the right.

Change Settings
Use this button to get to a dialog where you can customise the movie's duration, how your video is handled, and how multiple music tracks are stitched together.

Make Muvee
Once you've chosen your files and settings, use the Make Muvee button to preview the end results.

Make a music video

James Morris turns his mobile phone video into VH1 fodder using *Muvee autoProducer*

Mobile phones with video recording offer nowhere near the same level of quality as a digital camcorder. But whereas you're only going to take your camcorder to places where you planned to shoot video, your phone is with you all the time. If you're the proud owner of a video recording phone, the chances are you'll have some interesting clips in dire need of exposure. While you can send the raw video on to friends, your footage will have much more entertainment value if it has been edited. But editing video can be both time consuming and tedious. This is where Muvee's *autoProducer*
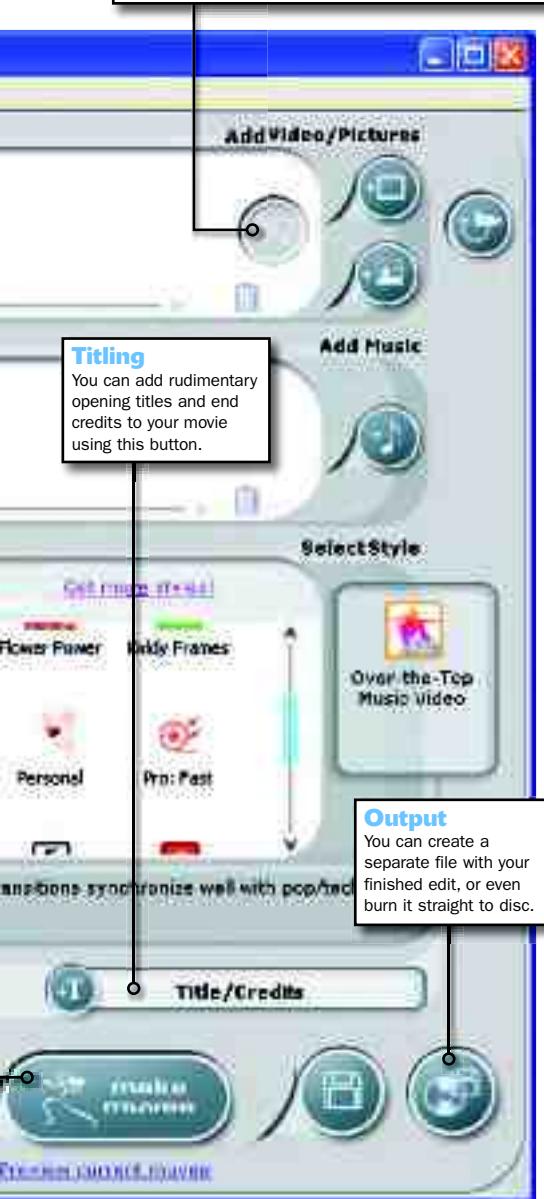
comes in. It makes all your editing decisions for you, and even arranges them in time to the music of your choice.

FACE THE MUSIC

Most editing apps leave the choice of how to put the clips together up to you, and they also expect you to decide where to split long videos into shorter segments. *Muvee autoProducer* does all this for you using its innovative Artistic Intelligence system. Although its workings are almost entirely transparent to the end user, this incorporates some very clever technology for detecting action and camera moves.

With its system of styles, *autoProducer* can use the information it gleans from your footage to edit it automatically. Muvee has analysed how real video editors make their decisions and distilled this out into sets of rules. When you apply a style to your video, these rules are applied to your footage. Although you can provide

Being Spike Jonze
From phone to MTV in six easy steps

1 Before you can edit your video, you'll need to import it. *Muvee* can acquire video from DV camcorders, analog capture devices with WDM drivers. However, since we've already brought the video over using our Nokia's own software, we simply have to use **Add Video** to browse for files.

2 One of *Muvee*'s strengths is its ability to edit your videos automatically in time with music. You can use the **Add Music** button to bring in MP3s, WAVs and WMAs. However, if your WMA is protected by DRM, such as a *Napster* download, you won't be allowed to import it.

3 The core of *Muvee autoProducer* is its styles gallery. Different styles will create longer or shorter cuts, and add more or less visual effect wizardry. As we were making a music video we had two primary choices: Simple or Over-the-Top Music Video. We opted for the latter.

4 Although *Muvee* will do the editing for you, you can use the **Change Settings** button to alter some of the parameters, in particular how long it's going to be. The **Duration** tab is where you change the length of the piece, either to fit the music, the video footage, or a user defined time.

5 Your last step before previewing is to add the titles and credits for your creation using the **Title/Credits** button. Here, you can type in text, change the font, and choose a background. The **Title Sequence** dropdown gives you a choice of different animation styles as well.

6 Now press the **Make Muvee** button. The software will analyse your source files, calculate the edit for you and then play a preview. If you don't like what you see, try tweaking some of the settings. When you're happy with your creation, hit either **Save Muvee** or **Burn to Disc**.

Not so much automation…

Taking more control of your music video

7 By default, *Muvee autoProducer* makes all the decisions about how to cut up footage. But if there are portions you really must have in the finished product, you'll need to venture into magicMoments. Highlight the clip, and then click **Thumbs up/down** icon to call up the interface.

8 Play through your clip in magicMoments, taking note of events you'd like to include or exclude. For anything you want, click the green **Thumbs up** icon, and for anything you really don't fancy click the red **Thumbs down**. To begin with everything is grey, indicating no particular preference.

9 If you've inserted thumbs up or down at the wrong point, you can also use the grey **Neutralise** button to remove them. The **Go to previous/next snap point** buttons will help you jump to exactly the right place. Hitting the Neutralise button will then remove the green or red highlight.

10 If you hold down either the Thumbs up or down button for an extended period, a larger portion of the footage timeline will be highlighted green or red. Use this to ensure an entire sequence is kept or discarded. However, you don't need to go through your files with a fine-tooth comb.

11 You can also take a little more control over your movie using the **Video** tab within **Change Settings**. This lets you choose whether to keep shots in sequence or shuffle them. Try a few different settings and hit **Make Muvee** to see if the result is an improvement.

12 The **Audio** tab within **Change Settings** gives you more control of your audio. If you've used multiple music files for your soundtrack, you can choose to use all of them, and toggle whether the smartJoin function blends the tracks together with cross-fades.

a bit more input as to where you want the emphasis on your clips. Otherwise *autoProducer* does it all on its own. It even analyses the beat and pace of your chosen backing music, and adjusts its editing points accordingly.

MOBILE MOVIES

Editing video from mobile phones offers a few novel challenges compared to footage from camcorders. Aside from the much lower resolution, the file formats are also different. mobile phones generally use 3GPP (3rd Generation Partnership Project) formats. These have a .3gp or .3g2 extension and are based on a version of MPEG-4 or H.263. The Nokia 8800 we used records MPEG-4 3GP files, for example. With most mobiles, you'll also need to use the supplied software to transfer media to your PC.

Another potentially irritating difference is how you shoot the video. Whereas camcorders are landscape, mobiles often shoot in portrait mode, so the proportions will be wrong when you use PC editing software. While some apps such as *Adobe Premiere Elements 2* are starting to include tools to compensate, *Muvee autoProducer 4.1* doesn't, so ensure you shoot your video landscape. For this tutorial, we shot some footage of a martial arts competition and set it to a fast-paced soundtrack to create a music video. We won't be inviting friends round for a cheese and wine party to watch the end results, but they're much more likely to take a look at our kick-arse video now it's set to a kicking soundtrack. **PCF**

Workshop

Simon Danaher on how to create realistic effects using 3D rendering

HDR imagery has been in use for quite a while now and is very useful for matching 3D objects with a real background image. There are lots of different applications for HDRI, though. In this walkthrough, it's used in place of scene lights to recreate the lighting conditions of a real-world setting. Because the HDRI is principally used for diffuse illumination, though, the quality of the lightprobe image is not massively important (better quality images will produce better results, but original image quality is less important for diffuse illumination).

In the walkthrough, we are also using a small amount of reflection on the truncheon to simulate specular highlights from the light. This is because the HDRI illumination does not provide specular highlights in the same way as a normal 3D light source. By adding surface reflection to the objects in the scene the HDRI will create realistic highlights. This is actually closer to how things work in the real world. We are also blurring the reflection in the truncheon material (at a cost to rendering speed) to diffuse the highlights and hide the low quality nature of the HDRI image. If you need hard, shiny reflections then you must have a good quality, high resolution HDRI map or you will see the poor results.

With a low quality HDRI, blurring the reflections can mask any quality issues.

The low-quality HDRI map is insufficient for hard, blur-free reflections.

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Realistic modelling

The finished render used in last month's HL2 Episodes feature.

Ever wonder why in-game characters look plasticky or flat, despite the high-end graphics cards available these days? It's because the RGB colour gamut of a PC isn't anywhere near as subtle as the entire spectrum of light we see in the wveryday world. In order to render photo-realistic characters from in-game models, then, you'll need to extract the model and then apply a fewadvanced techniques to increase the'dynamic randge' of the lighting to something that looks more natural.

We've used a light probe – a bauble – to capture the High Dynamic Range properties of a photo's scene; we then apply this light map to a Combine model from *Half-Life 2* (the model was lifted from the game using SDK and then imported into *Cinema 4D*) and edit it into the original photo for a seamless effect. James Carey was not hurt in the production of this photo. **PCF**

Manipulating HDR images

Using *HDRshop* to obtain realistic results

1 Here is the scene into which we want to put the 3D object. The model is extracted from *Half-Life 2*, but to help us with placement and lighting, we have a stand-in replicating where the model should be once it is composited. This is how we want the final scene to look.

2 We've re-shot the image for the background. This is the scene into which the 3D model will be composited. It also represents the mean brightness of the scene, and we will need to capture the lighting at brighter and darker exposures than this to obtain a realistic result.

"We'll be using a light probe, which is, in this case, simply a silver bauble"
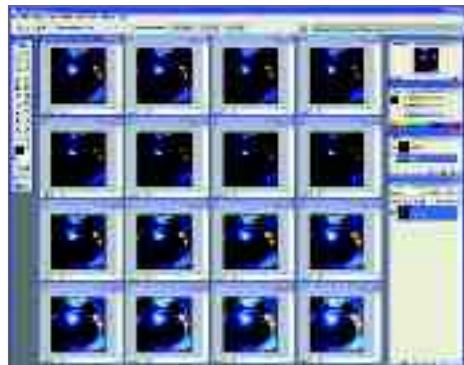
6 The bracketed shots are uploaded from the camera and cropped around the lightprobe using a batch processing action. They must be cropped the same or they will not load into *HDRShop*. It's also important that the images be named sequentially, in order of brightness.

Modifying photos in Cinema 4D
Shoot the scene, apply the extra HDR layer and render the result
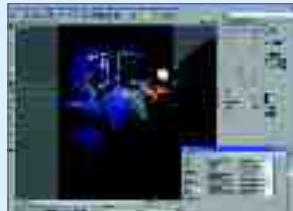
**1** Lastly, you need to use the HDR map in your 3D program. We're using *Cinema 4D* (on the coverdisc). Here you can see the scene with the background loaded and the model posed. **Auto Light** is switched off in the **Render Options** menu.

2 The light probe image (from step 9, below) is loaded and applied to a Sky object (a sphere surrounding the scene). There are no lights, so this is all that will be used to light the scene, but in order to do this you must use Global Illumination rendering.

3 Enable **Global Illumination** in the **Render Settings** panel, and vary the strength of the illumination effect. Click the **Render** button to create the finally lit image (*Cinema 4D* takes two passes, the red dots are normal).

ON THE DISC

Cinema 4D demo
Cinema 4D from Maxon is a 3D rendering program that supports HDR images and global illumination, vital for rendering scenes such as this one.
www.maxon.net

The GIMP
If you need to retouch your image or textures, you could do a lot worse than using this free graphics program. *The GIMP* is packed with features you'd expect from a commercial graphics app.
www.thegimp.org

CleanSkinFX
Should the subjects of your photo be spotty, ugly oiks, *CleanSkinFX* may just be able to help. This neat app clears up skin blemishes for that straight-out-of-the-movies smoothness.
www.mediachance.com

VisiPics
Projects such as this always produce reams of duplicate or slightly modified pictures. This is a way of identifying and deleting them.
**foxie.griffox.info/visipics**

3 To generate a good reflection, you would need a highly reflective object, such as a chrome ball. When taking the photos it's important to minimize the camera's reflection in the shot. Ideally you should move back and zoom in, this scene is dim enough not to matter.


4 The next step is to take multiple shots of the object at different exposures. Do this with a manual camera, with either aperture or shutter speed as the variable and by using the camera's digital exposure setting. You'll also need a tripod and static subjects to get a clear shot.

5 If your mean exposure was taken at 1/15th of a second and f5, go five steps slower for the brighter images, and five steps faster for the darker images, or as many as your camera will allow. You could also fix the aperture but vary the shutter speed during the bracketing process.
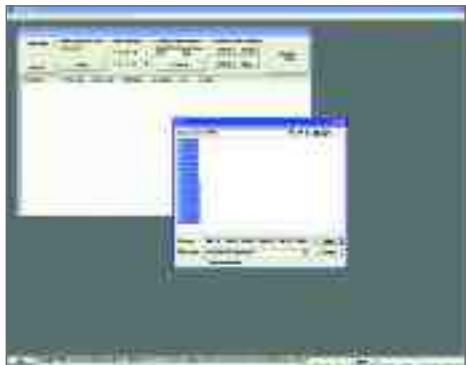
7 In *HDRShop*, available at **www.hdrshop.org**, choose **Create➜Assemble HDR** from **Image Sequence**, then **Load Images**. Select all the pictures you've taken and click **Open**. You may get an error message on loading, but hold down **[Enter]** and all the images will be loaded.
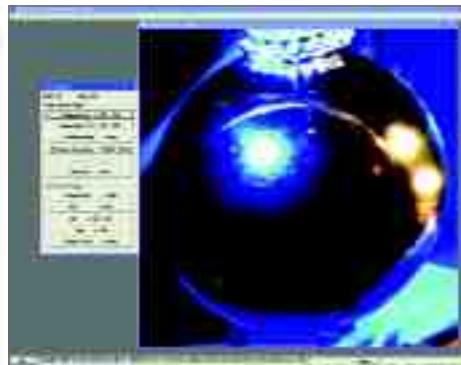
8 You can generate a camera curve for the images or work out the correct f-stop increment but we're creating a quick and dirty HDR image here. Select **[F1]** and click **Generate HDR Image**. Save the HDR and choose the format supported by your 3D program.
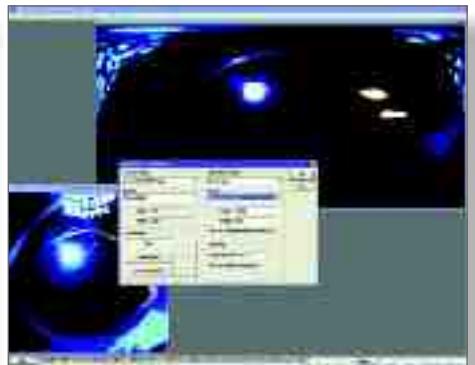
9 Finally, you need to convert the HDR image into a spherical map. In *HDRshop*, go to **Image➜Panorama➜Panoramic Transformations...** Set **Destination Format** to **Latitude Longitude** and click **OK**. Give it a 'spherical' suffix so you know which is which.

Russell James shows you how to unite the two opposing forces of home computing

So, you've installed Windows, and you have the Bliss desktop in front of you. You're probably feeling quite proud of yourself right now. Now try doing anything meaningful. Connect to the internet, for example, or fire up a game. You can't do it.

The reason for this is that you haven't yet installed drivers for the Mac hardware. Windows' built-in stack caters for simple components, such as the USB ports and the keyboard on a MacBook Pro, but the wireless adaptor or the graphics processor are rendered completely useless.

So what can you do? Well, fortunately, many of the Mac's pieces are the same as those in a PC. This means that drivers are readily available. Head to **wiki.onmac.net/index.php/users/drivers**, and you'll find links to many of the files that you need to get your Windows Mac running properly.

However, in one particular department, you're likely to remain disappointed for some time to come. Due to the differences in the PC and Mac hardware, there are no compatible drivers for Apple-specific 3D cards. This means that any program that requires a reasonable level of 3D or video won't work. This is a shame, as one of the major reasons for installing Windows on a Mac would be to play the latest games. There's no doubt that home developers will eventually create 3D drivers, though. In the meantime, however, you'll have to stick to more serious pursuits.

Don't expect to play games on your MS-addled Apple Mac just yet…

Have your say forum.pcformat.co.uk

How to install Windows on a Mac

Since time immemorial, home computing has been divided into two camps: PC users running Windows, and owners of Apple machines sporting Mac OS. Each system has its own strengths and weaknesses, with certain items of hardware and software native to each environment. Now you can have the best of both worlds. Thanks to those clever people at **www.onmac.net**, you can install Windows on a Mac. Technically, things are still at an early stage, and you may find that things go wrong when following this tutorial – if they do, go back a step or two. Still, the potential is huge.

Before you begin, you need to do two things. Firstly, using your PC, head to **download.onmac.net**, and download the **winxponmac0.1.zip file**. Run it, select your hard drive, and it will create an XP directory. You'll also need *Nero Burning ROM* – there's a 30-day trail at **www.nero.com**

Next, you need to copy the Windows source files from your original XP disc. So, open it up as a folder. Select all the files on the disc, and copy them into **C:\xp\src**. Now you're ready to experience the best of both worlds. **PCF**

Getting started…

Achieve the impossible with *PCFormat…*

1 Now turn to your Mac. First, back up any vital data. Now, insert your OS X disc, and turn the machine on while holding down **[C]** button. Select a language, and then select **Utilities➔Disk Utility**. Choose the hard drive in the left pane, then select partition on the right.
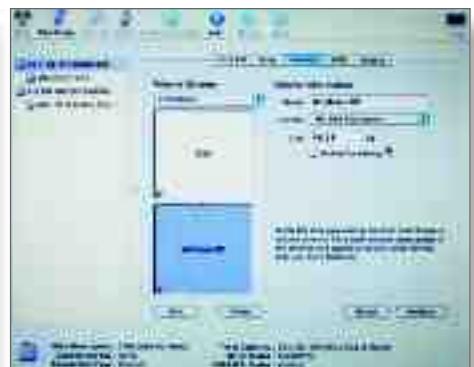
2 From the **Volume Scheme** menu, select **Two partitions**. Then select the first partition, give it the name **XP**, and choose **MS-DOS File System** as its format. For the second partition, the name should be **OS X**, and the format **Mac OS Extended (Journaled)**. You can now hit **Partition**.

"When you've finished, reboot, and your Mac should reboot just like a PC"

6 Now insert your home-made XP installation disc and restart (click the Apple and select **Restart**, for those who have never used a Mac). You should be greeted by a rather attractive boot selection screen. Use the up and down arrows to cycle between the Apple and Windows logos.

Crossing the divide

First, create your Mac-friendly Windows installation disc…

1 **Locate sp2.nrb** in **C:\xp**. Double-click, and this will fire up *Nero Burning ROM*. You must now add and replace a few items. In *Nero*'s right-hand pane, navigate to *C:\xp\src*, and add all the files therein to your project. Be sure not to copy the src folder – just its contents.

2 Next, use the right-hand pane to navigate to **c:\xp\patch**. Copy the contents straight into the project. You'll be asked whether you want to replace files – you do. You should now have a series of folders ready to burn – be sure that your folder structure looks exactly as above.

3 Select **File→Compliation Properties**, and choose the **Boot** tab. In the image file field, type **C:\xp\boot.img**. Now exit the options, and save your project. If you want to burn your CD again, you can open the project up, Insert a blank CD or DVD, hit burn, and you're sorted.

3 Surprisingly enough, you need to install OS X on the OS X partition. So, move through the menus, and select the relevant partition when you're given the option. The process should complete without a hiccup. Eventually, the Mac will reboot with OS X installed.

4 You now need to copy the file **xom.efi** from your PC – it should have been created when you unzipped the download earlier. Place it in your Home folder on the Mac (you can open this by selecting **Go→Home**). Now open the **Terminal**, by selecting **Go→Utilities→Terminal**.

5 In the terminal, you need to type the following, letter for letter: **sudo cp xom.efi /System/Library/CoreServices [Return] (you'll need to enter your pass word here). cd /System/Library/CoreServices [Return] sudo bless --folder . –file xom.efi –setBoot [Return]**.

7 Owners of Mac Minis or 20-inch iMacs should press **[F4]**. This will fire up a 'debug mode'. Press **[F7]**, and you'll be asked to give some screen res parameters. For the Mac Mini, Xresolution should be **1,280x1,024**. For the iMac, it's **640x480**. Skip through any other prompts.

8 Press enter on the Windows logo. Nothing will happen for a while, and you'll then see the partition screen. Don't partition the disk. Select **Partition 2**. You can format it as NTFS or FAT32, large partitions only have NTFS. FAT32 is perfect, as it allows read/write access from OS X.

9 Complete the Windows installation. When you have to restart the Mac, press **[F2]** to disable CD booting. If you're using one of the relevant machines, you also need to enter the resolutions as before. When it's done, reboot, select XP, and it will load as though you were running a PC.

Record any song

Mike Channell brings home taping up to date

The number of high quality radio stations appearing on the internet is increasing on a daily basis. This, allied to the fact that digital radios remain relatively expensive, means that more people are turning away from their wireless radios and towards their wireless internet. Making the complete switch to internet radio isn't without its problems, though. The nature of a stream means that you cannot simply download it to your desktop to listen to later; if you want to record an online broadcast you have to record it manually, which usually means resorting to the humble *Sound Recorder*.

FOR THE RECORD

Unfortunately this option is hamstrung by two major problems. The first is that *Sound Recorder* has no way of scheduling recordings, meaning you must be at your PC at the beginning and end of whatever programme you are recording; not altogether convenient. The second problem is that *Sound Recorder* only saves files in the uncompressed, and therefore hard drive swallowing, WAV format, meaning you need acres of space just to record a half-hour show. Enter *Alive WMA MP3 Recorder 2*, which puts paid to both those problems.

Installation is a simple process. There's no serial number required and no need to connect to the internet. *[Then how do you record the radio? – Ed]* Just run the installer and follow the onscreen instructions. Pretty soon you'll have all you need to start recording and cutting internet radio broadcasts from your PC. **PCF**

Early iPod prototypes failed to meet Apple design standards.

Listening again

Store your favourite radio streams the easy way

1 The *PCF* office currently rings to the sound of BBC 6 Music, but if you have your heart set on country-tinged acid jazz, feel free to 'experience' that instead. Start the stream that you want to listen to in the normal way, and then load up Alive WMA MP3 Recorder.

2 In *WMA MP3 Recorder*, click on **Record from…** and you should see the various audio sources on your PC. We're interested in one that should be marked Stereo Mix, Mixed Output, Wave Out Mix or What U Hear. Click the checkbox below whichever option your PC has.
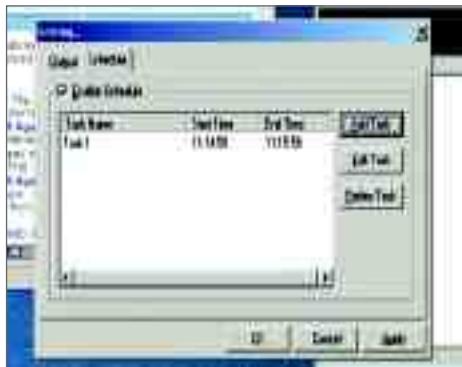
3 Go to **Options** and click on the **Schedule** tab and then check the **Enable Schedule** box. Hit **Add Task** and create a scheduled recording for whenever your show is on. Alternatively you can hit the big **Record** button if you've just heard something you're desperate to keep for posterity.

4 Congratulations, that undulating line that you see is the waveform of your recording. If there is no line, something has gone slightly awry. If this is the case, check that you've selected the correct audio source. Double-check your selections from Step 2 if this is the case.

ON THE DISC

Alive WMA MP3 Recorder 2
This is a great little sound recorder with a small memory footprint. It's perfect for recording your favourite audio streams, or anything else for that matter.
www.alivemedia.net

Screamer Radio
A freeware internet radio program for tapping into one of the myriad of internet radio stations floating around. Whatever your musical tastes, you should find something to get your groove on to.
www.screamer-radio. com

Media Join
If you have several recordings that you'd like to join together, or you're a fan of commercial stations but would like to remove the advert breaks, *MediaJoin* is a quick and easy way to stick them all together.
Camtech2000.net/ Pages/MediaJoin.html

YamiPod
Use this simple application to copy and convert your recorded radio streams, and move them onto your iPod in moments. A great – and free – alternative to using iTunes.
www.yamipod.com

Workshop

Ben Harling adds a body to the 3D modelled face you created in last month's tutorial

The purpose of this entire walkthrough is to use id's engine's capability to map large amounts of detail onto a low-poly mesh. It's called 'normal' mapping, and it's a technique that has crept into nearly all new releases of late, boosting the graphical quality of games substantially.

Many PC users will be familiar with the concept of bump mapping, where a greyscale image is projected onto a mesh to provide bump heights, and normal mapping is pretty much the same, but in colour. It potentially adds vast amounts of detail to standard bump-mapping through an extended pallette. A normal map is created by rendering the high-detail model with a special material setup, so that distances in all three spacial directions (X,Y and Z) are represented by the colours red, green and blue. The resulting image can be thought of much like a hologram, albeit one that only the computer sees in three dimensions. The addition of UV mapping into the mix allows this data to be wrapped like a skin around a character model, giving pretty much endless possibilities for adding detail to a model.

The best thing is, the Doom 3 engine is capable of generating these maps automatically (with a bit of guidance in preparing the model), taking some of the headache out of this daunting task. Engine developers can finally sit back and watch the artists work their socks off, as a polygon count is no longer an excuse for a bad model.

Alternatively leave the model looking like this for a disco-themed avatar.

Have your say forum.pcformat.co.uk

Put yourself in Quake IV

part 1234

To follow this tutorial, you will need a copy of *Blender3D* that you'll find on this month's coverdisc. Conveniently, it's open source, so no registration is required. If you haven't read the first part of the walkthrough, go back to last issue's tutorial to learn the core techniques like extruding, moving and scaling.

The tutorial here covers building a basic body mesh, but see the cover disc for further video tutorials to add detail to your mesh. For this part, you will need two sketches of the body model you intend to make, one front and one side view. You'll need to make sure they are proportionally accurate, and when scanning them, place them centrally on square canvases of the same size. You'll also save a lot of bother if you make the background transparent and save the files as PNGs, making it easier to import. Fire up *Blender*, and load last month's head model, or Part_2_Start.blend from the DVD. **PCF**

Body to body

Change 2D drawings into a 3D model

1 Create a plane, press **[Tab]**, then create another perpendicular to it (front and side views), underneath the head mesh, and size them to fit. Use the **UV mapper** to map your sketches onto each plane (the method we used last month). Click **Alpha** in the **Texture Face** panel.

2 Press **[Tab]** to go to object mode, then left-click to position the red and white 3D cursor at the front/centre of the chest, just below the chin (do this in both front and side views), and add a new plane in the front view (**[Space]→Add Mesh→Plane**). Resize this to form the first polygon.
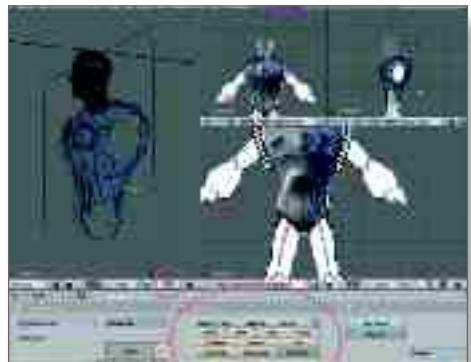
"To create your model you'll need to draw two sketches of the body you intend to make"

6 Keep selecting, extruding and moving edges, until you have the torso. To fill gaps, select four vertices around the hole and press **[F]**. You can also snap two vertices together by pressing **[S]** then **[0]**, then clicking **rem Doubles**. Leave open holes for the arms and legs.
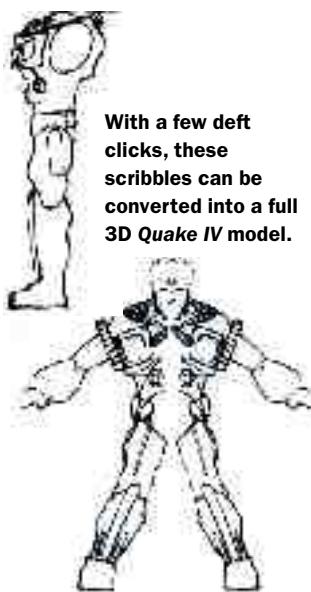
With a few deft clicks, these scribbles can be converted into a full 3D *Quake IV* model.

Get Sculpting
Add gruesome details to your head with *Blender*'s very own built-in Z-Painting module. Check your DVD for a video tutorial.

Complete the mesh
Build low and hi res versions of the model, and embellish with bionic devices, gaping wounds, and armour plating to put the fear of God into your mates during deathmatches.
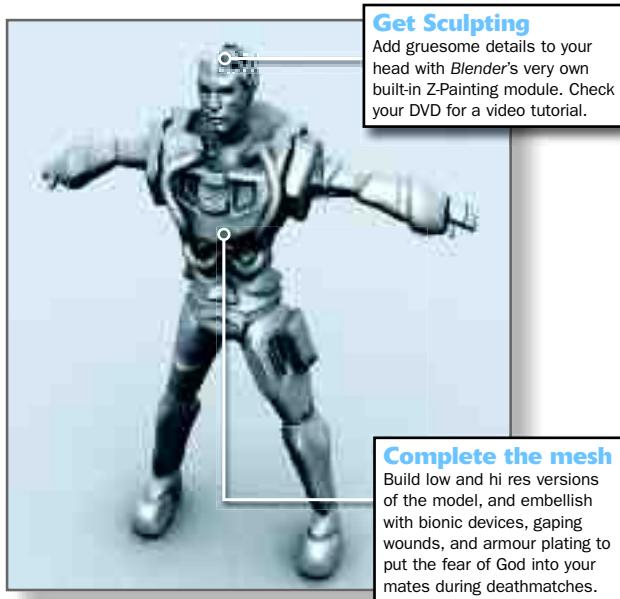
ON THE DISC

Blender 3D
The latest version of this software, including B-Brush scultping, and the necessary Python libraries. Use it in conjunction with this tutorial and you'll have a *Quake IV* model ready for play in no time.
www.blender3d.org

GIMP
Piece together your preliminary sketches and design the textures for your model with this fully featured, yet absolutely free, open source graphics tool.
www.gimp.org

Quake4 SDK
Full of useful samples (sadly no high-res meshes) for would-be modders. The kit also includes examples of normal maps.
www.iddevnet.com

Video tutorials
Confused by all this chat about vertices? Then take a look at the special movie files on this month's disc that show exactly what you need to do in glorious technicolour. You can also find Blend files for this tutorial on the disc.

NEXT MONTH
NORMAL PROCEDURE
WE DELVE INTO THE MURKY WORLD OF ADDING NORMAL MAPS TO YOUR CHARACTER MODEL
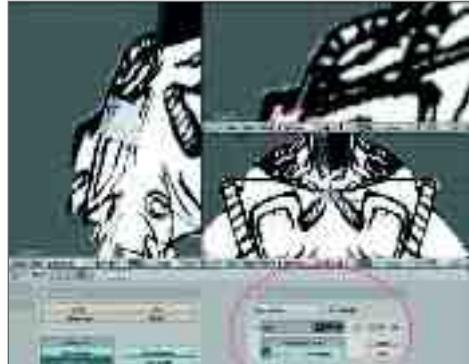
3 Apply a mirror modifier to the plane in the same way as for the head, and move the plane outwards in the X-axis, and in edit mode, until you end up with a rectangle shape. Grab the top right vertex, and move it inwards to taper the shape at the top.
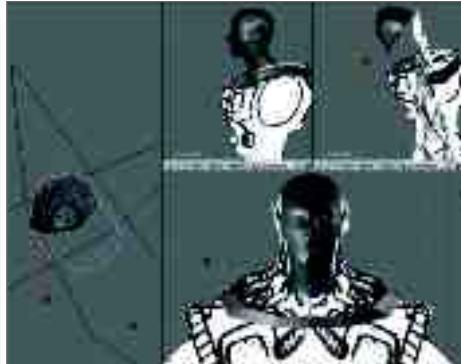
4 Select the two outside vertices, and extrude them right around the neck to form the collar. When you reach the back of the head, try and line up the vertices with their mirror counterparts so they snap together. Increase the merge-limit setting in the mirror modifier if need be.
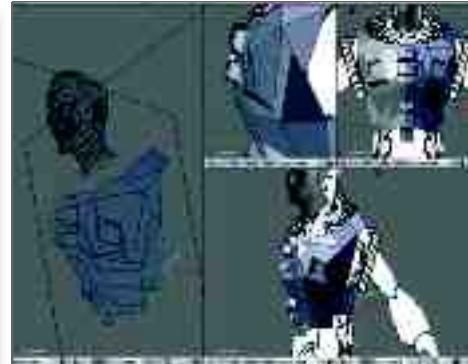
5 Go back to the front plane, and extrude the bottom two vertices downwards, following the body shape in side-view, and start extruding some of the new faces sideways around the trunk of the body, joining at the back in the same way as the collar.
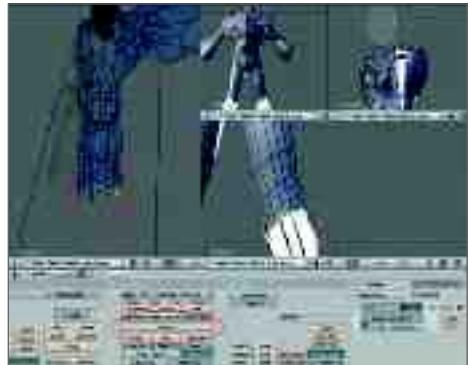
7 To create arms or legs, hold **[ALT]** and **right-click** any vertice on the edge you want the limb on, then hold **[SHIFT]** and **right-click** any vertices that are missed until you have a circle. Press **[E]** to extrude in front view, and repeat. Build detail around joints to avoid animation errors.
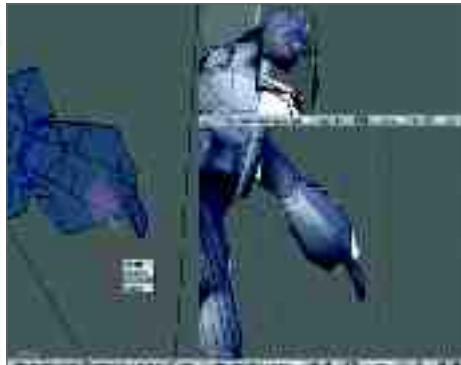
8 The knife tool is useful for creating the feet and hands, select some faces and press **[SHIFT] + [K]**, then draw over the faces to cut them. Adjust each vertice to roughly match the picture. Select the reference planes and hit **[M]** to move them to another layer making them invisible.
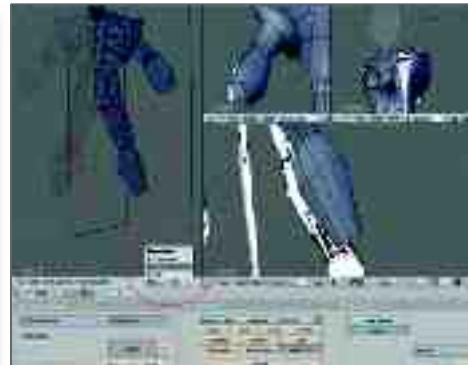
9 Inspect and make final adjustments to the proportions of your model by selecting a vertice, pressing **[O]** then **[G]** to move proportional amounts of verts. In this mode, you can change how many vertices you affect by rolling the mousewheel, the grey circle indicates your influence.

Exploring Realsoft 3D

Discover powerful and effective 3D modelling techniques in very little time at all. Nick Mohr takes a look at this lesser known but highly capable rendering package.

Control Bar
The control bar changes depending in what context it is being used. This becomes very helpful once you move onto more advanced topics.

Select Window
When working with large projects, this window helps you organise objects into groups. Its drag and drop capabilities make it very simple to use.

Main Toolbar
The toolbar may contain more tools than you can fit onto the screen. You can scroll it by right clicking and pressing [CTRL].

Render Progress
It may be boring, but this is all you can look at when rendering.

As 3D software goes, *Realsoft* perhaps does not have the status of other major players in the market such as *3D Studio Max* or Alias' *Maya*. Surprising, as it is a fully featured modelling tool that possesses advanced rendering, creation tools, animation and much more. Indeed, *Realsoft 3D* has much in common with its distant cousins; if you are familiar with any other modelling tools you'll feel at home with the full version of *Realsoft 3D 4.5* on this month's coverdisc. But if you are a novice, the controls and layout quickly become second nature. Like other tools in its class, *Realsoft* comes with a huge library of prefabricated objects, example scenes and a large collection of textures too.

EXTRA POINTS
Along with the standard tools of any 3D package, *Realsoft* also possesses a rather unique feature. The compass tool is a selection menu that pops up in the main view port when you hold down the right mouse button. It's context sensitive meaning it changes depending on what and how you are working on an object. It's also been designed so that your muscles 'learn' to use it. While this sounds like hard work, it eventually becomes quite instinctive.

In this tutorial we'll focus on using some of *Realsoft*'s most basic and powerful tools to build a simple submarine using sub division faces, then once complete finally render the scene. After installing *Realsoft 3D* from the cover disk, you need to enter the serial number when requested, which is **G14054108533081**, but you'll soon be well on your way to learning 3D modelling. **PCF**

Building a submarine

Learn the elementary concepts behind *Realsoft 3D*

1 Before we can start a few of the default parameters of *Realsoft* must be changed in order to ease the creation process. In **View Controls** on the right, ensure **Draw current input grid** and **Snap to the current grid** are checked. Uncheck **Set project to Parallel→Perspective**.
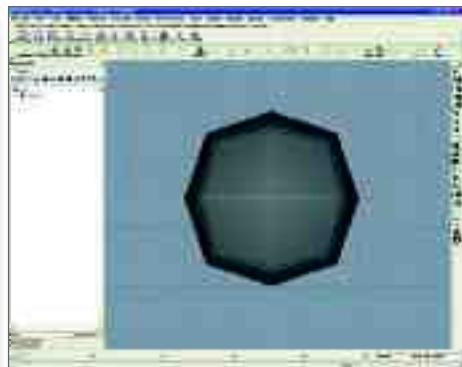
2 Under the **SDS** tab, at the top of the app, select **Cube** and then left click once in the main window, drag the mouse cursor 15x15 units and click again to create what is a called a subdivision cube. The newly created object also appears in the Select window as subdiv1.
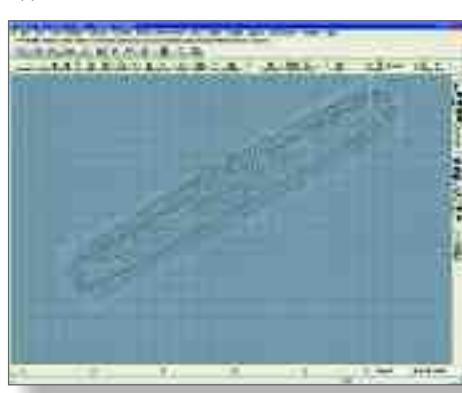
6 Once you have adjusted the subdivision to your liking left click your mouse to complete the transformation. Now do the same with the top surface of the submarine body but this time enter '3' in the **Sections** area. This will create a more complex surface we can use to extrude a fin.

ON THE DISC INSPIRED TO MAKE MORE MODELS? FIND LOTS MORE 3D APPS ON YOUR DVD

Create a 3D submarine

Toolbar Tabs
All objects, shapes, NURBS, lights and other important elements used to build a scene are neatly organised into categories under these tabs.

View Control
These dinky buttons change the view port's rendering, grid lines, axis and more.

View Port
Or view window as it's known. Here's where you build and manipulate your scene.

Time Line
Animation is surprising simple to implement in *Realsoft* with the help of the Animation Bar.

ON THE DISC

Realsoft 3D
This program is a fully featured 3D modelling, rendering and animation tool. Available on our cover disc, version 4.5 has no restricted features and is absolutely free for personal use.
www.realsoft.fi

Milkshape 3D
This is a low polygon modeller initially designed for creating models in *Half-Life*, but has evolved into a superb little package.
www.swissquake.ch

WinMorph
A high performace morphing and warping application. Great to make fun of your friends with.
www.debugmode.com/winmorph

OpenOffice.org 2.0
While we're on the subject of excellent free software, *OpenOffice* is a fantastic alternative to *Microsoft Office*. While it doesn't have all the functionality of Bill's behemoth, it's certainly enough for most users.
www.openoffice.org

3 Select **Left View** near the centre of the **View Controls** toolbar, then move your mouse over the end of the thin blue line until the pen icon appears. Drag the shape to make it about 100 units long. Don't slave over counting units as exact measurements aren't necessary.
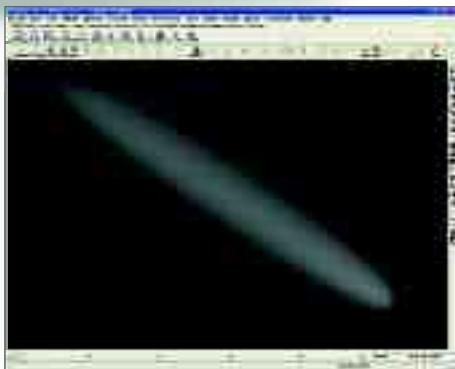
4 This embryonic scene can be explored in detail by panning, zooming or rotating. This is achieved by pressing **[CTRL]**, **[SHIFT]** and **[ALT]** respectively then right-clicking and moving the mouse. You can change rendering modes with the bottom three buttons in **View Controls**.


5 With the submarine body selected locate and click **Edit→Face** found in the **Control Bar**. Now using rotate, select both end faces of the object by pressing **[SHIFT]** and left-clicking. Click **Subdiv F**, then left click once near the top of the screen and move the mouse down.
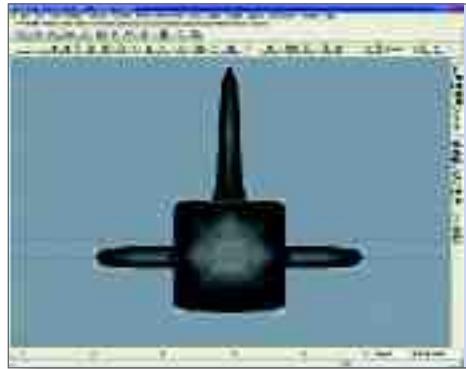
7 Highlight the centre sub division surface on top of the submarine body then click the extrude button. Left click on the main window and drag down to create a fin. You can click the blue 'normal' line to fine tune the fin size. You can repeat this method on the sides too.

8 To finish off the submarine we have added a steel texture to it. Any material can be dragged and dropped onto any object from the **Materials** menu, which is located on the second tab on the Select Window. We have also added a point light that is under the **Light Source** tab.
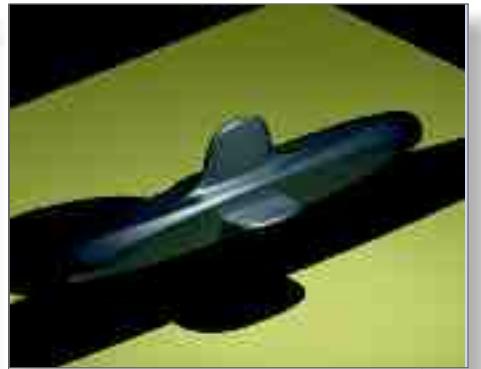
9 Before we render the scene, a camera must be added to specify the point of view. Align your scene how you want then click **Creation→Camera→Accept**. Now click **File→Render**, from here you can select a name and adjust the resolution, then finally hit **Render Image**.

Workshop

Michael Lewis and **Dave Hart** examine Electronic Arts' bug-fixing testing community

EA usually tests all of its games exclusively in-house. Recently, however, it broke with tradition and invited legions of devoted testers from www.bf2combat. net to explore its new downloadable **Battlefield 2** booster packs while they were still under development.

These booster packs are expansions which offer affordably priced new content. **Euro Forces**, the first **Battlefield 2** expansion pack, is reviewed this issue, while the second pack, **Armored Fury**, takes the fight to American soil. It also introduces new maps and aircraft like the A-10 Warthog.

We're hopeful that this new beta policy EA initiated with the booster packs will continue into the future and that they'll use it for other titles. As we saw with the introduction of **Battlefield 2** version 1.2, new patches often break more than they fix. By inviting community testers to participate in a well-executed program, EA repaired hundreds of bugs that might have otherwise prompted a new hot fix.

Starting testing early is critical to successful game development. Testing eliminates devastating errors and improves game balance. By multiplying the numbers of testers and supplying a detached perspective, external communities augment traditional quality assurance (QA) programs. Games are software, and they will never be bug-free, but if more bugs are caught early in the QA cycle, we enjoy more trigger time.

Extensive pre-launch testing reduces the number of patches Battlefield 2 needs.

Have your say forum.pcformat.co.uk

Finish off your BF2 map

part 12**3**

During the last two issues we've progressed through the basics of *Battlefield 2* mapping. Last month we created a functional map by placing vehicles, flags, roads and structures.

We conclude our series with more advanced mapping techniques. Lighting effects are one of the most important facets of any map. Beware, however, that rendering light maps takes an age; unless you're working on a supercomputer, make sure you have something else to do while your rig crunches the data. We also show you how to pack your map, create custom loading screens, and edit descriptions. Testing your map is also critical. If you are looking for some help with testing we'd recommend *Battlefield 2* Combat: The Battlefield 2 Tour of Duty, at **www.bf2combat. net**. It offers free memberships for mappers, and will give you a great opportunity to test out your maps with 64 players. **PCF**

Advanced mapping tactics

From ugly duckling to majestic swan in nine steps

1 *BF2* maps come in three sizes: 16, 32 and 64 players. You create layers where objects in each map size appear. When you create control points, vehicle, and player spawns you need to assign them a layer. This enables you to alter the content between sizes.

2 Ticket bleeds are important in *BF2*. They occur when one team owns control points whose area values are equal to or exceed 100. For example, if you want a team to inflict a bleed with three flags, set the Area Value of each control point to 35 in the TweakerBar.

6 Ambient sounds add a dose of atmosphere to each engagement. Right click on the terrain and select Create Ambient Sound, from the TweakerBar. You can now select the sound file to play and change parameters such as volume and radius.

Mail in...

You want to create Battlefield 2 maps, we have a Battlefield 2 server to run custom maps on. Let's come together and work this out... Send us any of the projects you create using PCF's tutorials and we'll showcase them.

pcfmail@futurenet.co.uk

Prepare for battle
Packing, mini-mapping, and tweaking the description

1 To change the loading screen background you need to place some specific textures in your level's info subfolder. It's easiest to copy the .png files from a stock *BF2* map's info folder and then edit them in an image application like *Photoshop*.

2 To change the verbiage that appears on the loading screen, open **/info/mapname.desc** in *Notepad* and replace **LOADINGSCREEN_MAPDESCRIPTION_MAPNAME** with your own description, where **MAPNAME** is the text that will appear onscreen.

3 To play your completed map with friends, you need to package your map. Select **Mod→Package Mod**, then **Package this level** to compress it. Your release will need to include the files client. zip, server.zip and the info folder in its entirety.

3 The combat area defines the playing boundaries of your map. Select the **Combat Area** tool in the Level Editor, then draw a line anti-clockwise, by **[ALT] + left-clicking** the terrain. Put combat areas in your different layers to specify and define different map sizes.

4 Changing sky attributes can have a big effect your map's ambience. Under Light Settings in the Tweaker Bar you can change the sky texture, cloud layer, sun flare and fog parameters. Here we have configured these settings to create a dramatic sunset.

5 In the same tab of the TweakerBar, change the light settings to match your sky settings. We made the sun colour orange and we aligned the light direction with the sun in the Sky Texture dialog. Now recompile your lightmaps to see the results of the changes you made.
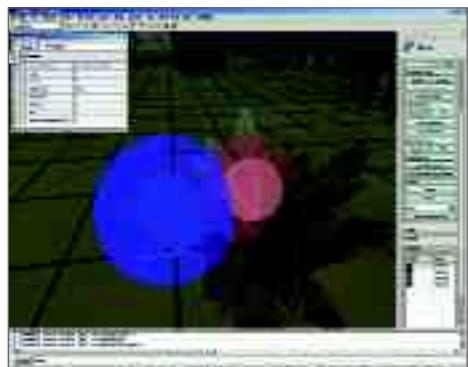
7 You can trigger special animations, like frightening a flock of birds when a marine walks nearby, with ambient triggers. To create them, **right-click** the terrain and place an **Ambient Trigger** and an **Ambient Effect**, then adjust the effect type and trigger radius in the TweakerBar.

8 The hemimap reflects light from the ground onto dynamic objects. To generate the hemimap, select **Compile→Make Ground Hemi**. Hemimaps cause substantial changes, as the screenshot illustrates. Note how the APC is tinged green from light reflecting off the grass.

9 Click **Show Minimap** in the Editor window to create the file **minimap.dds** in your level directory. If you look in the **Hud** sub-folder, you will see three textures. Using an image program, you can replace those textures with **minimap.dds** after scaling it appropriately.

Build a Flash website

Richard Cobbett designs a professional-looking site with *A4Desk*

Flash is unquestionably pretty, but it's also hard work. The jump between basic doodling and creating a full website usually proves as tough as jumping higher than a house. Unless of course, you have *A4Desk*. Fire up your copy from the coverdisc, visit **www.bluesquad.co.uk/future/a4desk** register to get your A4Desk unlock key, and get started on making your site. It's the design equivalent of knowing that a house can't jump.

A4Desk strips away *Flash*'s complexity in favour of a set of 15 customisable templates. In each case, you can alter the colours, edit the text (using standard HTML markup) and insert both your own custom images and a nice MP3 background music track, but by and large, they're intended to be used as-is.

Clearly, there's a limit to exactly how much you can do with these tools, and they're hardly a replacement for *Flash* proper, but they do offer an extremely convenient way of getting a basic site up and running, and published to your website without any fussing over code, animations, or convoluted design. **PCF**

1 Fire up *A4Desk* and pick a page template, save it immediately, and click **Publish** to save it out. This is your basic canvas. As you'll see, it plays a short intro animation, before moving into the preconfigured sections: About Us, Services, Staff and so on.

2 By default, the templates all look a little bit too plain for our needs. Within a section, choose **Upload Section Image** from the bottom right, and select a file to import. This has to be the correct resolution for the template, or it'll get squished up.

3 Text is your main contribution to any website. Click **Menu Titles** from the bottom panel to edit their names, then on the correct tab to put in some new descriptions. Don't worry about length – the buttons on the bottom right will handle all the scrolling.

4 Text colour is dealt with by the entry window, but backgrounds and borders are consistent throughout your site design. Pick them from the **Company Information** tab, along with adding your company name and 'baseline' (a motto or tag) and publish the result.

Editing your text Get your message across in a snap

1 If you know your way around HTML, you can type some basic tags in directly – but you only have access to a small selection of character styles: **<b>**, **<i>** and the others listed above. More modern tags, such as **<strong>** and **<em>** aren't supported, and forget about CSS.

2 Given these unfortunate shortcomings, it's quicker to just use the shortcut buttons, and be sure that your site will recognise your instructions. **<b>** is bold, **<i>** italics, **<ul>** underlines a piece of text, and **<font>** handles both the character style and colours. **
** adds a line break.

3 Be careful when you choose text colours. *A4Desk* will happily let you put yellow on green, or even white on white, and the results can be painful, if not actively impossible, to read. Pick your background hue first, then move onto contents, and preview the results to make sure they are legible.

4 *A4Desk* is geared towards fairly small websites, but don't let that dissuade you if you've got designs on a large web presence: you can add a **<link>** to your text that will speed visitors off to a more comprehensive website (or alternatively, set it to **mailto:** to launch their email client on demand).

Missed a Workshop?

Hidden behind the sunny exterior of every copy of *PCFormat* is a wealth of information about how to get the most out of your PC. If you're baffled by Blu-ray or vexed by Vista, simply grab your phone and bag one of our bountiful back issues…

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Luis Villazon
A IS FOR ACERBIC

AskLuis...
ALL YOUR PC QUESTIONS ANSWERED

Help is at hand

Long since rendered impervious to the collective wailings of the *PCF* readership, Luis Villazon confronts the latest round of pleas with a pitiless stare

Lost your data? Luis has a typically clever but simple solution.

HARD DISKS
Blown hard drive

Q I have a secondary hard drive in my computer that holds most of my data. It recently blew one of the microchips on the back. I want to know if there's any way I can retrieve my data from that hard drive? The data are pretty much invaluable, and I need to get it back. There's also no other place from where I can get the data from again.

DANIEL
blutonium@tranceaddict.net

A Let's start with the important stuff. Nowadays, the word "data" is used as a collective noun and takes the singular. Going all Latin on me and insisting on the plural is pretentious and the only thing that could be worse would be if you were to then contradict yourself in the same sentence by using the singular form. Oh wait, that's what you did.

So much for semantics, let's look at the electronics: how do you know that "one of the microchips on the back" has blown? On a motherboard, microchips are all there is, and it is fairly safe for the aspirant tech guru to speak facetiously of any dead board as having "blown". Hard disks are different. Hard disks are a blasphemous gestalt of different technologies; electronic, mechanical, quantum and logical and you may only diagnose a blown controller board if you can see actual blackened circuit board or melted solder. Assuming that you have arrived at this unlikely apocalypse, the data can be recovered quite easily with a circuit board transplant from an identical donor.

Unfortunately, this is like saying that base metal can be transmuted into gold quite easily with a philosopher's stone. I have done it once (fixed a hard drive, not transmuted lead, sadly) but this was with two drives that were bought at the same time and thus shared not just their make and model but also their manufacturing batch number and all but the last two digits of their serial numbers.

With a tissue-type match that is any less perfect than the one I've just described, this tactic is unlikely to be successful. It's fortunate, then, that data retrieval companies like Ontrack Data Recovery (**www.ontrack.co.uk**) are around to cure your problem. They can also get away with charging you anything from a few hundred to a thousand pounds for this service, but at least it works

well, though: I've used them myself in the past.

REBUTTAL
Convenient amnesia

Q There is a question on your website from someone who wanted to get their Windows 2000 password back. The answer you gave IS TOTALLY WRONG! Look at www. lostpassword.com, DUMBASS! YOU DONT KNOW A LOT DO YOU! WHY DON'T YOU GIVE PEOPLE AN EASY STRAIGHTFORWARD ANSWER INSTEAD OF TELLING THEM TO FORMAT, YOU FOOL?

MAD MAT
mad.hacker@ntlworld.com

A Actually, I gave Car Mullally four different ways to get his password back, most of them quite straightforward. I omitted to mention lostpassword.com, not because I had never heard of it (though there is that) but because I simply refuse to believe that password 'recovery' programs are ever used legitimately. I know some astoundingly computer-illiterate thickies, believe me. They have lost data to virus infection, hard disk crash, accidental reformatting and rain coming in through an open window. But not one of them has ever forgotten their administrator password. Clever people remember their password, stupid people write it down. There is no middle ground. Selling a password recovery program to get people back into their own Windows account is like selling 9mm Berettas to control rats. It is nothing more than a tissue of gauze covering the ugly weeping sore of a very shady industry with another agenda

OS GRIEF
Arklinux ISO

Q I have burned the Arklinux ISO to two CDs now, using CloneCD and Nero for good measure, but I still can't get my system to boot off either. My BIOS has been set to boot off CD, and I have tried the CD in other machines. What's going wrong with the ISO?

SIMON GIE
simongie@mweb.co.za

A You've tried the CD in other machines but you forgot to tell me whether it worked then or not. Let's consider the possibilities. Your computer doesn't work but the other one does: this means the fault is with your PC not the CD – possibly your hard disk is smaller than the 3GB minimum for an Arklinux install. Arklinux won't boot from either machine: this could be a corrupted ISO file. Download the md5sum file from www.arklinux. org or one of its mirrors, and check that it hashes correctly against the ISO file using the md5sum command in Linux (you'll obviously need a working Linux distro for this). Try this both on the arklinux.iso file that you download and the one that was burned to the CDs (could be a bad burn). If the md5 check fails then the file is corrupted and you should download or burn again as you see fit.

So far, so quoted from the official FAQ. Now here's what I think is *really* happening. I think Arklinux is *actually working* on both computers. You're just too damned

impatient to wait for the prelink phase to complete near the end. This can easily take an hour on a slowish PC and my record with Arklinux is a four and a half hour marathon. Try it tonight and check again in the morning.

BIOS INADEQUACIES
Phantom keys

Q I have a Pentium 1. When I boot my PC I receive the following message prior to Windows: keyboard error or no keyboard present. The problem disappears when I next start my PC and Windows proceeds to load normally. How can I fix this problem without permanently disfiguring my prized PC?

MARK KORPAN
tross@smartcape.org.za

A It sounds as if your BIOS isn't recognising the keyboard on the first pass because the keyboard isn't waking up fast enough. This can happen with some cordless keyboards that slip into power-saving mode when you haven't pressed a key for a while. When the PC boots, the wireless transceiver gives a shout and the keyboard mumbles "just five more minutes, Mum" from under the duvet. The BIOS then comes bounding up the stairs, throws open the bedroom door and seeing nothing, storms back down again to compose a cross error message. Meanwhile, the recalcitrant keyboard crawls sleepily out of bed and has just time to pull its jeans on by the time the BIOS comes upstairs for the second time.

The solution is to disable the "Halt on error" feature of the BIOS. This will at least let your PC get on with giving the dog it's breakfast and boiling the kettle while your keyboard is rooting under the bed for a matching pair of socks.

OS GLITCHES
Stuck blue screen

Q I was wondering if you could help. I'm having problems with a PC. On start-up, it 'sticks' on the Windows page with the blue background which says "Windows is starting up" for up to 20-25 minutes on occasion. It never boots up immediately. Once it's running, it's generally pretty stable though.

I have already tried the following to no avail: full virus scan, added another 512MB of RAM, run Disk Cleanup and Defrag, installed ↘

FAQ
Enzyme-based computers

Produce even whiter whites, even on a 40° wash.

What new devilry is this, then?
Instead of using voltage levels in semiconductor circuits to define the zeros and ones of a digital computer, Professor Itamar Willner of the Hebrew University of Jerusalem in Israel has come up with a way of using chemical reactions between enzymes.

Like DNA computers?
Very different actually. These devices allow us to interact directly with our own cellular chemistry by the power of certain enzymes.

Which enzymes, pray?
Glucose dehydrogenase (GDH) and horseradish peroxidase (HRP). You feed the computer hydrogen peroxide and glucose as your input values – if the chemical is there, you call it a 1, if it's not, it's a 0. You can detect this by shining a light through the solution.

And what can it do?
So far, all they have is an AND gate and an XOR gate. By adding two more enzymes you can link logic gates. If you did this on a large scale, you could build any logical circuit.

What would be the point of such a thing?
The most obvious application would be for organic devices that were implanted in our bodies. These would let us directly control drug delivery, for example.

Read more at:
www.newscientist.com/ channel/info-tech/dn8767.html

Bedside table
This month, Luis is reading…

Computers: A simple and colourful introduction for beginners
Authors Brian Reffin Smith **Publisher** Usborne (out of print)

Ha ha, look! This book was published in 1981! Let's all laugh smugly at the retro illustrations and out of date information. Except that this book has weathered the ages remarkably well. Computers are so ubiquitous now that we have forgotten to ask how they work or what they are for. Considering that it was written before the Windows, the mouse, the CD-ROM, the web or even the PC itself, there is almost nothing here that reads as particularly anachronistic. Would that my own words ring so true in 25 years time.

(entirely. Is your email address **mad.e noughtoforgetmyownpassword. ntlworld.com**? No, it is not.)

▶ **all the MS Windows updates I can lay my hands on. It has Windows XP Home edition installed and the PC is about 3.5 years old. My daughter uses it a lot for Hotmail, talking to her friends.**

TORFINE BRUCE
torfine@bruce-family.co.uk

A An XP install should take 12 to 15 seconds to boot. Most ugly delays are caused by Windows trying to connect to devices that aren't responding. Start with your slowest protocol first, ie. the LAN. Shared printers and mapped network drives will all require the OS to perform a lengthy courtship ritual involving a series of dinner dates and awkward conversations on the doorstep late at night before Windows feels that it can call this resource its friend

again. Delete networked resources, and you'll skip all of that. Turn off File and Printer Sharing for Microsoft Networks (right-click **My Network Places**, choose **Properties**, select your LAN connection, click **Properties** again and untick the **File and Printer sharing** box). The same goes for USB and IEEE1394 devices. Unplug them all apart from the mouse and keyboard, and see what happens. You probably have a faulty device or corrupted network resource and you might be able to restore the connection and retain sub-60-second boot times, but unplug everything first.

GRAPHICS CARDS
Too damn fast

Q I have a strange yet annoying problem, my PC is a dual core Athlon

3800 X2 with an MSI NX 7800GT 256MB graphics card. I have it networked to a media PC (not the problem), but when I play games it plays them too quickly. I had them running fine to start with, then within an hour the graphics and the sound is played too fast, then it gets stuttery. If I change games then sometimes I can't even go into the menu screens. When I reboot, all is well until I run a game again. I have reformatted, reinstalled, updated all drivers, graphics, chipset and DirectX. This never happened on my old, inferior 3GHz Pentium with a GeForce 6800.

IAN YOUNG
Ian_Young@dsl.pipex.com

A That's because your GeForce 6800 wasn't generating enough heat to run baths for all the inhabitants of a medium-sized village. This is an overheating problem, nothing more, nothing less. You may quizzically raise as many eyebrows as you like but I have been doing this caper long enough to spot overheating problems without actually reading the entire letter. "… strange … problem,… dual core … 7800 GT … but when I play games … OK to start with, then within an hour … stuttery … all is well until I run a game again. …updated all drivers…" That's how much I need to diagnose this

problem. It's overheating I tell you. Go forth and install more fans.

HARD DISKS
Lern 2 rite

Q Hard drive how to make a external drive into two thank you.

DENNIS
dt004g2987@blueyonder.co.uk

A My first three drafts for this answer simply said "With a axe," to avenge the indefinite article over your rampant disregard for its correct form. However, the trouble with doing that is that I'll have to endure a mailbox clogged with outraged emails from the partition jihadists who won't rest until every hard disk is partitioned into a million tiny logical volumes. So, yes, strictly speaking the way to make an external (or internal) drive into two is to partition it using *FDISK*

(if you don't need to preserve the data on it) or *Partition Magic* (if you do). But as most of you should know by now, the correct form of this question is "Hard drive *whether* to make a external drive into two thank you". And the answer is "no". Not now, not ever. There goes my mailbox again.

MONITORS
Everybody Hz

Q I clicked on the Screen Properties, then I clicked on the Settings then I clicked on the Advanced, then I increased the 60Hz to 100Hz. Now when I boot up my PC I get a blank screen for some strange reason, and I can not see any letters. As a result I can not log in, so please help me.

RAGE KAHIN
ragekahin@yahoo.com

A Well, you did pretty well to type that lot blind, but I should just say that if you run your fingers along the space bar until you come to the right-hand side and then move up to the row above and along to the right one key, you will find the full stop. Very useful key, that. Try it. Soon. The next key you need to familiarise yourself with is [F8] because you will use this to enter Windows Safe Mode. Reboot your PC and tap [F8] until the Safe

Mode menu comes up and chose one of the non-command line Safe Modes. This will throw you into the Windows desktop at VGA resolution, which is really ugly but should at least display. You can then set your monitor refresh rate back and reboot to return to normal mode, safe in the knowledge that you'll never play around with those settings again.

GLOBAL CITIZEN
Foreign sockets

Q I live in Australia and I am planning a backpacking trip to the US and the Caribbean. I want to buy a laptop computer that enables me to use the internet in all these places using a simple dial-up connection. Do laptops account for this, or will I encounter compatibility problems with an Australian-bought laptop? Are laptop modems set up to work with networks in all countries, or

---

How will you get to level 60 if you can't play at work?

1 Windowed mode
It isn't just possible to play *World of Warcraft* at work, it's virtually your civic duty. How else will you keep up with all the legions of unemployed l33t h@xxorz? If your line manager is the prowling type though, you'll need a way to switch screens fast. **[Alt] + [Tab]** is too slow, try playing in windowed mode (**Menu ➜ Video Options**).

2 Staying safe
Protecting yourself from the wrath of your boss isn't much use if your character dies while you are busy placating him. You need ways to keep your character alive unattended. Paladins can shield and then hearthstone home, hunters can feign death, mages can teleport, rogues and night elves can stealth.

3 Go fish!
Combat will always be risky at work, but fishing is the perfect way to earn money in odd moments. Not only does it require very little attention, it is perfectly safe so you can simply reboot your PC when someone comes past. Make sure you remember to mutter about how unstable Windows is, as you do so.

4 Optical illusion
For the truly daring (or the truly addicted), why not desensitise your co-workers to the sight of *Warcraft* images on your screen by using screenshots as your Windows wallpaper. Then when you are caught playing, simply stand still and claim that any residual background animation is simply a clever *Active Desktop* effect.

"I guess it's time for me to book some more plastic surgery and go back on the run again"

are there voltage differences in phone lines that will fry the modem? Any suggestions?

FRED
friedsprats@yahoo.com

A What you need is an international laptop adaptor set, containing power and modem converters for the various sockets found in most of the civilised and semi-civilised countries of the world. Try **www.dabs.com**. Alternatively, just use a mobile phone with global roaming and connect that to your laptop with infra-red or Bluetooth. (But you'll still need the adaptor set to plug your laptop in to recharge it.)

ONLINE PRIVACY
A snoop confesses

Q I've just downloaded your accounts for 2004, plus an invoice containing your home address. You may want to take this kind of stuff down off your webspace. I'm not a psycho, but it takes all sorts, eh?

JIM RAFFERTY
jimrafferty@supanet.com

A Well, my home address isn't exactly a secret and nor is the pittance that *PCF* pays me for being rude but yes, you're right. Those files were there as part of an experiment in building a web PC with no storage of its own and I guess I sort of… forgot about them. I guess it's time for me to book in for plastic surgery and go back on the run again.

USB
Memory card woe

Q I have an old-ish Sony Vaio laptop running Windows 2000. I also have a digital camera that uses SD memory cards. I can connect the camera to the laptop via USB to read the pictures off but I would also like to be able to write some images back to the memory card so that I can print them out on my Epson PictureMate. I bought a USB card reader for this but I cannot get the laptop to recognise it, even though the card reader states it is Win2K compatible. The LED on the card reader flickers on briefly and then goes out and that's that.

MELISSA JAMES
ml_james@ntlworld.com

A It sounds as if the USB port on your laptop isn't providing enough juice. Some of the early Vaios with just a single USB port could run it below the voltage specified by the USB standard. This doesn't matter to your camera because it has its own power supply, but the card reader is dependent on the power from the USB bus. Adding a powered USB hub for £10 would fix this, and is probably worth doing to avoid problems with USB peripherals in the future, but it isn't necessary, because you can almost certainly use your digital camera as a card writer. If the camera shows up in My Computer as an external drive, then you can just drag files in and out of it. Depending how you look at it, you have thus either wasted the money you spent on the card reader or saved the money you would have spent on the USB hub.

HARD DISKS
Disk death

Q My fiancée's PC has died of a serious case of deadness! Being at uni with all her work on there, the tears were flowing! Especially after I kept telling her to back her work up.

When powering up, it pipes up with the following elliptical message: "1720- SMART Hard Drive Detects Imminent Failure. Your hard disk drive is detecting an imminent failure. To ensure no data loss, back up and replace this hard disk drive immediately."

My PC has been behaving like this for over a year. By pressing [F1] it used to boot into Windows as normal and everything was just fine and dandy. I bet you're wondering why she didn't back up her files even when it told her to? I've been thinking that myself!

Now it's bringing another message up, reading "Windows could not start because the following file is missing or corrupt: <WINDOWS ROOT>\SYSTEM32\hal.dll"

I'm afraid my knowledge doesn't extend to PC health issues like this one, and hope I don't have to format the hard drive and re-install Windows, losing all my lass' hard work! As I don't want to be the one to tell her, maybe you could?

RIK GOMEZ
spanyardo27@hotmail.com

A I'd be glad to, but before I do, consider this: do you really want to marry someone capable of ignoring such obvious advice, given to her every day for a year? I'm just thinking of your children at this point. This stuff is hereditary, you know. But let's put all the jibes to one side for a minute and see if I can help.

To the future Mrs Gomez,
Your hard disk is dead, your data is irretrievable, your boyfriend doesn't love you any more, but is too much of a coward to tell you to his face. Have a nice day.
Yours etc, Luis.

VIRUS OF THE MONTH
What's lurking on your LAN?

Snow.A may sound seasonal and harmless, but is neither.

Name Bropia
Aliases W32.Snow.A
Type Virus
Infects Windows 2003/XP/2000/NT/ME/98/95
Number of outbreaks <100
Virulence Low
Lethality Moderate
First detected 1/3/2005

Symptoms
W32.Snow.A can launch ARP poisoning attacks. The ARP table is maintained by every network device to match logical IP addresses with physical MAC addresses. If a device does not know the MAC address of a packet destination, it sends an ARP request. A virus that broadcasts fake ARP replies can corrupt ARP tables and cut off parts of your network.

Prevention
Because the ARP protocol operates within the LAN, the virus must be installed on one of your local machines. W32.Snow.A will arrive as an .exe attachment so the usual prevention advice applies here.

Cure
The virus will reside in your Windows folder as ctfmon.exe. This is confusing, since the is a legitimate file called ctfmon.exe in Windows\System. W32.Snow.A appends itself to every .exe file on your disk. If you delete Windows\ctfmon.exe it will reappear when you run an infected file, so run an updated AV, or reformat and install a clean copy of Windows.

More info
tinyurl.com/z2tpu

state of the art #12

THE LATEST TECHNOLOGY EXPLAINED

The first customers for holographic devices will be blue-chip companies with massive storage needs.

Holographic storage

If you thought Blu-ray and HD-DVD were the last word in storage, prepare to be amazed, says James Morris

The DVD format is starting to show its age. Even 8.5GB dual-layer discs seem minuscule next to a 500GB hard disk, particularly with high definition video arriving this year (in the UK). Although the HD-oriented optical discs we looked at last issue are designed to cope with the greater capacity requirements of high resolution movies, even a 50GB Blu-ray disc won't put much of a dent into archiving a database hundreds of gigabytes in size.

Larger optical discs could soon be arriving, though. A long-imagined technology should see the light of day later this year. Holographic storage has tantalised scientists for decades, but recently Maxell announced that it would be launching a drive this September based upon the technology. With a 300GB capacity, it goes beyond anything currently available, and it's anticipated that capacity could hit 1.6TB in five years' time.

HOLOGRAPHIC VERSATILE DISCS

Maxell isn't the only company which has been working on holographic storage technology. In fact, there are now 18 members of the Holographic Versatile Disc (HVD) Alliance, which are cooperating on development of a slightly different version. The HVD system is expected to arrive with 200GB products in June this year, although the technology has the potential to squeeze as much as 3.9TB on a single disc.

Although the two holographic storage systems differ slightly in the details, they both work on the same principle. Whereas regular colour photographs record the amplitude and wavelength of the light hitting them, holograms also store its phase. With the phase information as well, the light stored can be identical to that which came from the original scene. This allows it to store spatial as well as colour and brightness information. A reference beam of light of the same wavelength as that used in the

Star Trek tech
3D: the final frontier of data storage

Read

The projected data array is read by a CMOS sensor.

The reference beam is projected onto the disc medium to read the recorded data.

By altering the position and phase of the reference beam, multiple pages of data can be read from the same location.
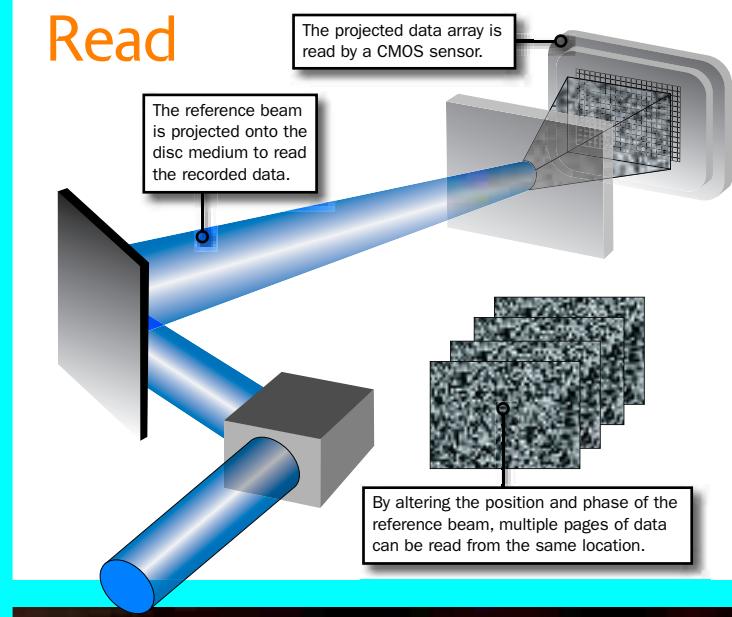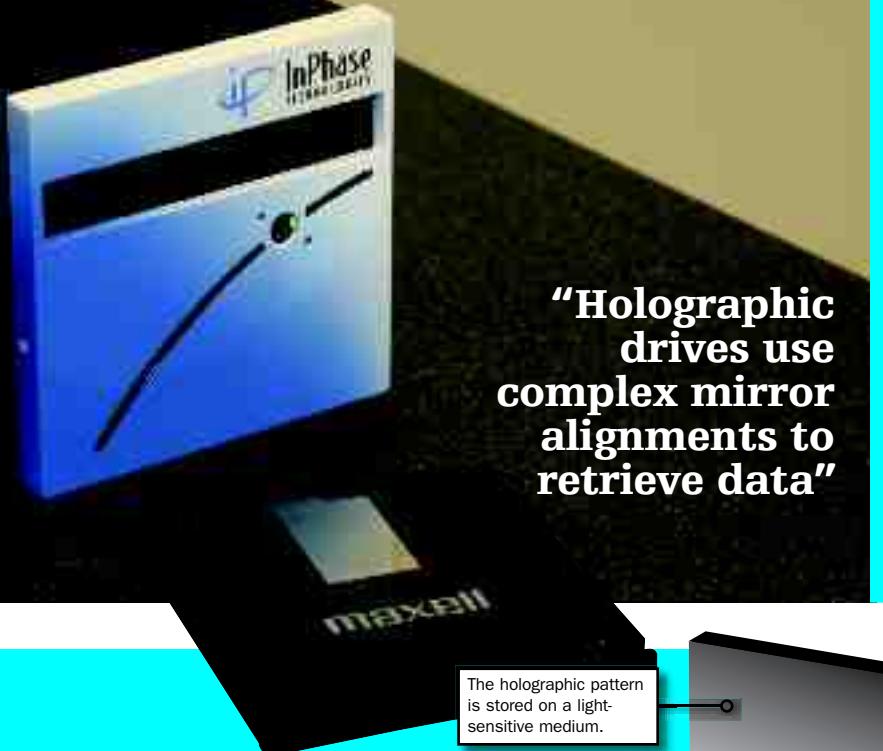
"Holographic drives use complex mirror alignments to retrieve data"

The holographic pattern is stored on a light-sensitive medium.

Write

The reference beam hits the media surface at an angle

The signal and reference beams meet at the recording media's surface, and the result creates a holographic image.

A prism splits the beam into two.

The Spatial Light Modulator (SLM) creates a 'chessboard' pattern from the beam using a digital micro-mirror array.

The signal beam has the data encoded into it in a 'chessboard' pattern.

The signal beam is sent to the SLM.

"You malfunctioning little twerp. I said I wanted holographic storage, not stored holograms."

construction of the hologram can be used to release the original phase information, so a 3D image is perceived.

Holographic storage works in a similar way. Two beams of light are combined, and their phase differences are recorded on the medium as interference fringes. The Maxell system uses a process devised by InPhase Technologies, whereby a single laser beam is split into reference and signal-carrying beams by a prism. The signal beam then passes through a Spatial Light Modulator (SLM). This uses a digital micro-mirror array to encode the data into the signal by blocking or allowing light through in a 'chessboard' pattern. The signal beam then meets the reference beam again at the media surface, and the resulting interference pattern is recorded on photosensitive material.

LIGHT FANTASTIC

To read data, the reference beam is projected through the medium, which then transmits the original 'chessboard' signal. This can then be passed through a CMOS-based detector to read off the data in parallel, leading to high transfer rates compared to current optical technology – potentially as much as hundreds of megabytes a second. But the real trick comes from the fact that the reference beam's wavelength and angle of incidence can be varied during recording and playback, in the same way that angling a hologram can produce a different 3D view. This can be used to write different data pages on the same medium, multiplexing data to produce huge storage capacity.

The HVD system instead uses a technique called collinear holography, developed by Optware Corp. A red 650nm and a blue-green 532nm laser are collimated together into a single coaxial beam with a unified wavefront. The blue-green laser reads the encoded data, while the red laser reads servo information used to track head positioning. A dichroic mirror layer is placed between the holographic data layer and the servo layer. This allows the red light to pass through, but reflects the blue-green holographic light.

Unlike the InPhase system, the Optware method reads light reflected off the medium rather than transmitted through it. This simplifies the head mechanism to just a single unit on one side of the disc. The servo information also makes it much more like existing CD and DVD technology, which embeds servo information with the data on the disc, so different drives can still position their heads correctly to read the data. And with a single object lens through which the collimated beam and its reflection are passed, drives based on Optware's technology could be cheaper to produce. More traditional holographic storage systems such as InPhase's require complicated arrangements of multiple mirrors to direct the signal and reference beams.

HOLO STORAGE FOR ALL?

So, just as we were looking at two competing high-definition optical storage formats for the foreseeable future, more than one player will be fighting it out to be the next-generation holographic storage technology. But before you rush off to put your order for a Blu-ray or HD-DVD drive on hold, bear in mind that holographic storage is not yet aimed at the everyday desktop PC user. The drives are likely to cost close to £10,000 a piece, and the discs will weigh in at around £70. So, for the time being, the technology is very much for companies with very high storage needs and extremely deep pockets. But as with all things in the computer industry, holographic storage is likely to filter down to us mortals at some point in the future. **PCF**

Genius Twintouch 19eNB
£25
p127

Belkin Wireless Slim Keyboard And Optical Mini Mouse
£40
p127

Belkin Wireless Desktop 280
£37
p128

Labtec Power Wireless Desktop Plus
£30
p128

Saitek PC Gaming Keyboard and Mosue
£70
p129

Microsoft Wireless Optical Desktop Comfort Edition
£80
p129

Logitech Cordless Desktop MX3000 Laser
£80
p130

Logitech diNovo Cordless Desktop for Notebooks
£80
p130

Microsoft Wireless Laser 6000
£90
p131

Gyration GC215 GO 2.4 Compact Suite
£100
p131

Take
Control

Stop punishing your digits! Mark Ramshaw roadtests 10
keyboard and mouse combos for comfy communication

Constantly pushing onwards and upwards in search of ever more PC power, we're all looking to install the latest graphics card, buy the biggest hard drive, and rig up the hottest soundcard. But in the rush to build an awesome machine, it's all too easy to forget just how important the actual interface between man and PC is.

We've wised up to the advantages of decent audio devices. The advent of cool LCD displays has made us more conscious of the need for the best possible visual quality. But when was the last time you gave a second thought about the tools you use to actually communicate with your PC? The chances are, you've never paid much attention to the specifications of either keyboard or mouse when buying your PC, never mind considered upgrading them. There's also every chance this attitude won't change until the

inevitable moment when you spill your cup of coffee all over the top of your desk. Well *PCF* is here to put you straight.

Unless you're the proud owner of some top-secret state-of-the-art voice recognition system, your keyboard and mouse are an essential lifeline. Settling for second best may even result in pain or ill-health in the long term. Developing repetitive strain injury (RSI) as a result of a badly designed keyboard may sound unlikely, but it's surprising how quickly fingers and wrist joints can deteriorate when put through the same gruelling routine hundreds or even thousands of times a day.

If health issues don't provide a sufficient excuse for investment in some new kit, consider how much more efficient the time you spend at your computer might be if you upgraded. A more comfortable ▶

keyboard and mouse can improve typing and clicking speeds, and well placed hot keys can speed up application launching. Even if those gains are mere fractions of a second each, the time savings will soon add up.

TAKE IT EASY

It's not just those lumbered with cheap and nasty desktop components that need to consider what a new keyboard and mouse combo can offer. Notebook users might not be able to ditch the keyboard provided, but they can benefit from alternative input devices. Out on the road it may be impractical, but it's easy to set up an impromptu docking station at home or in the office by buying a keyboard and mouse whose quality isn't compromised by portability.

Those who invested in a deluxe laptop or desktop system first time around may feel satisfied they already have the best on offer, but it doesn't pay to get complacent. A subtle but steady stream of improvements in keyboard and mouse design and construction means that the latest generation boast superior ergonomics, and a greater range of hotkeys and multimedia-friendly functions. If your input devices are more than eighteen months old then chances are you're missing out. Remember, too, that mice and especially keyboards are subject to greater wear and tear than any other PC components, so two years on even the hardiest of units is likely to

> ## "Even if the gains are mere fractions of a second, they all add up"

start showing the strain. Not to mention the scum.

The good news is that the latest generation represent better value for money than their predecessors. There was a time when you'd have to part with your firstborn or at least a minor limb to get your hands (or remaining hand) on something like wireless or optical tech. Now it's almost impossible to spend more than a hundred pounds on a keyboard and mouse combo, even when gunning for units featuring the latest technologies, such as laser tracking.

What may come as a surprise is just how diversely the ten models in our test

are designed. Recognising that one size does not fit all, manufacturers are continually changing and tweaking their ranges. Some opt for specialisation, as with Saitek and its range of gamer-orientated devices. Others, such as Microsoft, push the multimedia and comfort angles. And we're even starting to see the emergence of style-conscious units, such as the diNovo series from Logitech. Expect to see one of these in Sunday glossy magazine photoshoot any time now.

While it's heartening that wireless is now de rigeur, we are slightly surprised that so many manufacturers are still relying on 27MHz technology. Only one of the units on test, the model from Gyration, opts for the 2.4GHz, and even this isn't Bluetooth. Expect that to change with units that emerge over the next year or so, but don't let it put you off buying now. On units where the 27MHz wireless tech is well implemented there really is no discernable difference in performance. Similarly, we wouldn't suggest that laser mouse tracking over optical should be a deciding factor when making a purchase, either. The latter is a little more prone to interference from dirt and dust, but again a well-built optical mouse will offer more precision than even the most demanding point-and-click fiend is ever going to require. **PCF**

HOW WE TESTED

Stopping short of smacking each with a hammer, these are the rigorous tests we put each desktop set through

Connectivity

Put simply, this covers everything to do with how each set is connected to the PC. In addition to whether PS2 support is offered as well as USB, and the range, response and size of any wireless receivers, we've also taken into account the quality of the software, with red crosses handed out for slow-to-install, needlessly complex, or restrictive code.

Typing speed

Microsoft Word is arguably the most frequently used application of all time. We're now a nation of typists, opting for the screen and spellchecker over the pen and paper every single time. Even when not firing off printed letters we're emailing. We therefore chose *Word* and *Outlook Express* as the tools to give each of these keyboards a heavy beating.

Browsing

Whether at home or at work, there are few who can resist the urge to while away the hours online. So to test how each keyboard and mouse set stood up to the rigours of time-wasting, that's exactly what we did. In addition to finding out how each one handles web browsing, we also now know more about Pete Doherty than is strictly healthy.
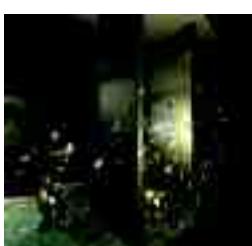
Gaming

While our console cousins are content to wrap their digits around a controller, the PC gamer is an ambidextrous beast. It's rare to find a game that doesn't require deft keyboard taps at the same time as rapid mouse work. To put the devices through their paces we went to war with RTS games and took up arms with a variety of first person shooters.

Taking control
Better communication through software setup

While it's the range of features and degree of comfort provided by both keyboard and mouse that are of paramount concern when choosing a replacement set, it's also worth considering how they communicate with Windows itself. Though many units will operate with standard drivers right out of the box, a well-designed unit should also include product-specific software that offers an easy and elegant interface with which to fine tune and customise its operation. We'd fully expected Microsoft to romp home in this area. No other hardware vendor has the same level of experience when it comes to writing software, or indeed such intimate knowledge of Windows itself. And yet many users have been left frustrated by the latest version of its Intellipoint software. Though efficient and easy to use, it crucially removes the ability to assign program-level customisation. Many users have also discovered that the scrollwheel doesn't work with all applications anymore, and neither can side tilting of the wheel be given key assignments. Sort it out Microsoft! Logitech's software, on the other hand, offers a good level of control, with the ability to set profiles for many different applications, but it sure is bloated. Perhaps the best compromise is to be found with the Saitek Gamer's keyboard and mouse, with software that doesn't bring Windows to its knees, but which makes individual game/application profiles a cinch to set up. Given that the supplied command pad alone features twenty seven key combinations, it's just as well.

Some combos allow you to use either USB or PS/2 connections with nifty adapters. Very handy if you're lacking in one or other of those port types.

Genius Twintouch 19eNB

Price £25 **Manufacturer** Genius **Web** www.geniusnet.com.tw

Unlike the majority of units in this group test, the Genius Twintouch 193eNB has very obviously been designed for the budget-conscious user – perhaps the sort of person looking to replace a worn-out or broken piece of kit rather than invest in a real upgrade. Even so, there are

DETAIL	
Connection	USB
Wireless type	27MHz RF
Mouse sensor	Optical
Mouse buttons	Three
Keyboard dimensions	390x165mm
Standard keys	103
Hotkey/multimedia keys	20

enough features and quirks to make the Genius kit worthy of closer inspection.

Take the inclusion of a better charger unit, for example. Attaching to the main wireless receiver, it draws on the USB connection to power up suitable AA or AAA batteries. The way the unit somehow combines a near-full-sized keypad with such a small footprint and profile also shows more attention to detail than you might expect at this price point, while the *EasyJump* component of the accompanying software does its best to add a little extra accessibility and programmability above and beyond regular Windows control.

That's the good news. Unfortunately we also have to judge the Twintouch based on actual performance out in the field, and it's not always pretty. The wireless connection proved woefully weak when it came to recognising mouse

input, for a start. Put any obstacle more than a few feet between rodent and receiver and a communication breakdown quickly ensues. The no-frills mouse itself is also dinky to the point of distraction, and though Genius quotes an 800dpi resolution, tracking was jerky even when the signal was actually getting through.

The keyboard's suitability as a serious input device is also questionable, with the cheap feel of the key action making lengthy typing sessions akin to wading through treacle. And though the numeric keypad gets the full-size treatment, the cursor keys are near to half size and squished into the tiniest of spaces. At this price some compromises are to be expected, but ultimately the Twintouch feels too much like hard work to recommend.

45% **PCF says…** "Great price, but that's all. Probably no better than your existing kit."

Belkin Slim Desktop Set

Price £40 **Manufacturer** Belkin **Web** www.belkin.co.uk

The first thing that strikes you about this set is the diminutive mouse, which looks like it could cause *PCF*'s ham-fisted scribes a spot of bother. So, why exactly has Belkin opted to team a standard keyboard with a mouse almost a quarter the usual size? Our minds are quite literally boggling as we speak.

Belkin's take on this size issue is that the Optical Mini mouse is that it's 'ideal for travelling and children'. Astonishing. Why not add leprechauns to the list for good measure? As for its suitability on the move – if there's room on your temporary workspace for the keyboard then there's probably space for a full-size mouse as well. It's not generally mouse dimensions that pose a problem anyway, rather the desk space needed for their movement. Using a smaller mouse doesn't actually reduce the space that's needed to use one. So why lumber users with a miniscule mouse that's too small to grip comfortably, too light to control

accurately, and which responds poorly to button presses?

It's a shame, because the other side of the partnership performs pretty well. Styled after notebook keypads, it combines minimal travel with a solid, reliable feel. A few concessions are made to keep the footprint within reasonable parameters, including small function and arrow keys, but both areas remain easily accessible. Only the fact that the unit can't be angled really irritates after a while.

Much as we'd love to be able to recommend the combo on the strength of the keyboard, the truth is that most buyers will end up forking out for a more substantial

DETAIL	
Connection	USB
Wireless type	27MHz RF
Mouse sensor	Optical
Mouse buttons	Three
Keyboard dimensions	420x160mm
Standard keys	103
Hotkey/multimedia keys	13

pointing device within weeks, if not days, of purchasing this set. Except, of course, for those who insist on using miniature hardware when on the move – in which case they'll soon be in the market for a genuine compact keyboard instead.

56% **PCF says…** "The desktop equivalent of the odd couple. Make your mind up Belkin."

Belkin Wireless 280

Price £37 **Web** www.belkin.co.uk

First things first – this is one sizeable desktop set. Unless you've got a desk big enough to boast its own postcode, we doubt you'll find an entirely comfortable home for this beast. What's also certain is that this is the beefiest keyboard and mouse set on test here. Technically, the

DETAIL

Connection	USB and PS2
Wireless type	27MHz RF
Mouse sensor	Optical
Mouse buttons	Eight
Keyboard dimensions	505x210mm
Standard keys	104
Hotkey/multimedia keys	30 plus volume, cursor and scroll wheel

Microsoft Laser 6000 mouse has a slightly larger footprint, but the Belkin feels fattest in the palm. The keyboard, meanwhile, is nothing less than gigantic. Just remember to get planning permission before attaching that oversized palmrest.

This isn't merely size for the sake of it, mind you. Belkin has used all that extra space on its keyboard wisely, placing ample distance between the various keypad sections and spoiling the user with a frankly bewildering array of extra hotkeys. A single button press can activate everything from the 'cut' command to a file search, yet somehow there's still space left over for a scroll wheel, window selection keys, and all the usual media player controls we'd expect. Belkin has taken an equally button-happy approach with the mouse. Unlike the majority of the others

on test there's nothing extra built into the mouse wheel beyond a basic button press, but the addition of three small buttons nearby, and then a further pair well placed at the sides of the mouse body more than compensate. Only three out of a total of eight can be programmed, but it's quite an achievement nonetheless.

The Wireless Desktop 280 isn't perfect, mind. While it should stand up to years of abuse, the hard action on the keys may mean your hands wear out in the meantime. And that mouse is perhaps just a little too steroid-enhanced for its own good. But really these are minor niggles, especially at this price. If you've got the space to spare, both on your desk and in the palm of your hand, you won't find another unit offering more bang for your buck.

79% **PCF says…** "A great all-rounder, packing so many buttons it verges on the fetishistic."

Labtec Power Wireless Plus

Price £30 **Manufacturer** Labtec **Web** www.labtec.com

While everyone craves that Ferrari, the reality is that most settle for something a little more affordable and practical. In that context, think of the Power Wireless Desktop Plus as the Lada of this group test. It's not particularly pretty, but it is proof positive that neither wacky styling nor innovation is necessary if you get the basics right.

Take that monster keyboard, for example. Though undeniably chunky and a wee bit noisy, it's nevertheless wonderfully easy on the fingers. Key spacing is ideal, there's just the right amount of travel, and responsiveness is neither too spongy nor too harsh. A palmrest isn't included, sadly, but this remains a perfectly comfortable keyboard to spend time with, and with none of the wireless signal problems experienced on some other models. Only the silver-shaded hotkeys across the top of the unit hints at any cheapness.

Then there's the mouse. Seemingly inspired by the delicate, ever so subtle

design properties of a brick, it's little more than a box with two buttons and a clickable mouse wheel – although the latter does include tilt sensors. Yet, despite such a lo-fi approach, it really isn't so awkward to use. Indeed, anyone who remembers PCs from a decade ago will probably be right at home with it. And it's the same story with the bundled software. It inexplicably seems to have been written as a throwback to Windows 95, but it works perfectly well, so who cares? Only the receiver/recharger's lack of a laptop-friendly USB connector is likely to seriously ruffle any feathers.

It's interesting to note that we began testing this particular unit before getting

DETAIL

Connection	PS2
Wireless type	27MHz RF
Mouse sensor	Optical
Mouse buttons	Three
Keyboard dimensions	460x200mm
Standard keys	105
Hotkey/multimedia keys	20

confirmation on its price. We'd expected it to sit a little uncomfortably in the £50 price bracket. How wrong we were. Given that you can bag it online for as low as twenty quid, the Wireless Desktop Plus is someting of a steal.

74% **PCF says…** … "Labtec's effort has a few design issues, but works where it counts."

Saitek PC Gaming Set

Price £70 **Manufacturer** Saitek **Web** www.saitek.com/uk

Given how many PC owners while away the hours blasting bad guys and building virtual empires it's a wonder there aren't more controllers of the non-joystick variety designed for maximum gaming pleasure. Not that Saitek has set out to change the face of input technology with its Gaming Mouse and Gaming Keyboard, the only non-wireless duo in our group test. Some snazzy blue internal lighting and a slightly bonkers extra number pad

aside, this could pass as common or garden office ware.

Which is actually a good thing. It's all very well investing in technology that will help you score higher and kill more, but it also needs to functional well enough under more sober conditions. Happily, the keyboard proves a perfectly behaved Windows companion. The keys have a greater travel and more noise than some of the other models tested, but the huge footprint means everything is well spaced. The mouse is equally sensible, boasting an easily cradled body shape and three well-placed programmable buttons. Some users have reported issues with Saitek's own mouseware, but we experienced no glitches on test. When it comes to using the Saitek system as nature intended, that gimmicky blue

backlight starts to make sense, particularly if you get a kick out of playing *F.E.A.R.* with all the lights turned off. The other two gaming-specific features are the inclusion of that number pad and a 'turbo' button for the mouse.

The former is fully programmable, with two shift keys making it possible to set up twenty seven unique macros. The mouse 'turbo' we found a little less successful. Switching the tracking resolution from 800 to 1600dpi it's intended to increase responsiveness. Yet, once a game's mouse sensitivity bar has been reduced to compensate for twice the resolution, it's hard not to feel like you're right back where you started. The Saitek is certainly a better all-rounder than expected, but is perhaps a little pricey unless you plan on making heavy use of that extra keypad.

81% **PCF says…** "Solid construction and decent software help the Saitek shine. Pricey though."

Microsoft Wireless Optical

Price £80 **Manufacturer** Microsoft **Web** www.microsoft.com/hardware

Since introducing its famous split keyboard design in the mid-Nineties, the Microsoft hardware line has continued to push the 'comfort' aspect. The Wireless Optical isn't quite so radical, instead featuring a single curved layout rather than separate sections for left and right hands. Presumably this blend between the traditional and scientific has been concocted for long-time typers who can't get their heads around something too different, though we wish it had bumped up the curvature just a little more. Another pass through the Seuss-o-matic please, Microsoft.

Nonetheless, it's a solid unit, sturdier and fuller featured than the price would suggest – what with a natty cushioned palmrest, a zoom slider, and a host of additional keys, including five programmables, plus extra buttons for multimedia, email, calculator and the My Documents folder. Unfortunately, like a number of other users, we experienced problems with the wireless reception,

with some key presses initially failing to register, even when signal strength was reading as fine. Stability was finally achieved, but only by placing the receiver right next to the keyboard, which does render the whole wireless keyboard concept a little pointless. And just to make things a little more frustrating, the keyboard doesn't seem keen on the notion of a continuous key press. That's not something that is noticeable when typing, but it's vital for smooth play in first person shooters.

Interestingly, there were no signal problems between the receiver and the mouse, which proved comfortable over extended periods and delivered flawless tracking. But with the Microsoft's Intellipoint

software failing to provide any kind of programmability for the mouse wheel tilt, what could have been a handy extra control system is rendered redundant as far as gamers are concerned. A bit of a missed opportunity all round, really.

58% **PCF says…** "Delivers a lot of style for the money, but questionable signal stability."

Logitech Cordless Desktop

Price £80 **Manufacturer** Logitech **Web** www.logitech.co.uk

Set against the diNovo effort also reviewed here, Logitech's MX3000 is a real meat and potatoes affair. This unit resists those designer loft-living aspirations. Instead your hard earned money buys a fairly standard design keyboard and mouse set, with solid workmanship, a sprinkling of extras, and pleasingly reliable

DETAIL

Connection	USB and PS2
Wireless type	27MHz RF
Mouse sensor	Laser
Mouse buttons	Eight
Keyboard dimensions	485x220mm
Number of keys	103
Hotkeys/multimedia extras	27, plus volume wheel, scroll wheel, zoom rocker, volume rocker

'Securconnect' wireless tech to justify the relatively hefty price tag.

Mouse-wise, the laser sensor is the star of the show, bestowing the unit with faultless precision, not to mention freedom from the hair and dirt-clogging problems that cause problems even for optical mouse users who share a house with pets. Almost as impressive is the fact that Logitech has packed on so many controllers without overcrowding the little beastie. The inclusion of two thumb buttons and a wheel tilt is predictable enough, but the addition of three extra zoom selectors is a real treat.

The 'zero degree tilt' keyboard presents a similar slight case of gadget overkill, adorning the main keypad section with more zoom buttons, an alternative scroll wheel, various program quicklinks, and a media player that would shame many a stereo system. There's even a fancy silver volume dial at the centre of it all. With this many extras there's a suspicion that they exist to deflect attention from substandard keypad, but such fears prove unfounded. Typing isn't quite effortless – this is a keyboard with a traditional 'masculine' feel – but the keys are responsive and deadly accurate. A few hours in the company of such a well-designed device and you really do start to notice how it can lead to a reduction in the number of typos that pebbledash your work.

This may not be a combo to make you more attractive to the opposite sex, but it is almost certainly one that will see you through to the next decade.

83% **PCF says...** "No gimmicks here, but what the Logitech does, it does in exemplary fashion."

top gear PCFormat

Logitech diNovo Cordless

Price £80 **Manufacturer** Logitech **Web** www.logitech.co.uk

One thing even the most ardent PC fan has to give to Apple is its unfailing eye for a cool shape. Its computers wouldn't have been nearly as successful if they didn't look stylish enough to sit comfortably in a museum of design (which one or two actually do). By comparison the average PC looks like a functional but very dull relic. Type a letter to your gran with a diNovo, however, and you'll feel like a Hollywood star hacking into some fictional FBI system, a finger lingering over that separate keypad might just be about to enter those launch codes.

Logitech tells us the design has won awards, and we've no reason to doubt it. The keyboard and accompanying numeric keypad have that same future-retro thing going on as products from designer Jacob Jenson (he of Bang And Olufson fame). But while so many lifestyle accessories have a habit of proving less than practical, this one actually walks the walk, too. Typing is near effortless, thanks to keys with just the right amount

of travel and a minimal amount of noise. And though the separate keypad comes across as a little gimmicky during regular desktop use, the way it isolates multimedia control does help make the PC a more family-friendly beast.

If we're getting really picky with the keyboard, we'd have liked the option to set it at a steeper angle. And the inability to angle the keypad at all is a definite oversight. But the real chink in the armour comes in the form of the mouse. It's sturdy enough, but with such a small

DETAIL

Connection	USB and PS2
Wireless type	27MHz RF
Mouse sensor	Optical
Mouse buttons	Three
Keyboard dimensions	390x205mm
Number of keys	88
Hotkey/multimedia extras	Seven, plus media cursor, and separate numberpad

body and only the basic three buttons on offer it seems mismatched with the rest of the bundle. But then it does offer exemplary performance, and you can't really argue with that. Oh, and ignore that 'for Notebooks' tag on the box. Any desktop machine would be proud to interface with this beauty.

87% **PCF says...** "A unit with bags of style and tons of extras. The mouse isn't as special though."

top gear PCFormat

Microsoft Laser Desktop

Price £90 **Manufacturer** Microsoft **Web** www.microsoft.com/hardware

The Microsoft design team can change the colouring all they like, but what this boils down to is a keyboard offering the same 'natural' design utilised by Microsoft's Comfort Edition, only this time with the addition of a laser guided mouse. And in case you're wondering, the translucent plastic used on the keys isn't there for the benefit of a cool backlight. What with

Microsoft promoting the long battery life offered by this model, illumination would probably have been something of a power munching liability.

Onto the mouse, then, and boy is it a whopper. Mirroring the swooping curves of the main keyboard unit, it provides a surprisingly comfortable fit. Grip may be an issue for those with smaller hands, though, in part thank to that oversized thumb indentation. Ironically, those with larger digits are instead likely to have problems with the two side buttons, which though undoubtedly useful are placed just a little too close to one another for the thumb to comfortably distinguish. More successful is the wheel tilt function, the nicely tacky feel of the wheel itself making it easy to negotiate the horizontal without accidentally impacting on the vertical (though, once

again the limitations of the Intellimouse software mean it's a non starter for in-game control). The precision offered by the laser sensor also makes a real difference. 1000dpi might not sound that much of a leap over standard optical technology, but when it comes to pointer precision every little bit helps.

The problem is that the keyboard design isn't the only thing that the Laser Desktop 6000 shares with Microsoft's Wireless Optical bundle. In our tests we encountered the same lack of fidelity with the wireless. What's more we even struggled with 'low signal' errors on occasion, even when Microsoft's own software proclaimed everything to be hunky dory. Microsoft certainly knows how to design and build sturdy hardware, but the sooner it steps up to a more robust wireless frequency the better.

68% **PCF says...** "A great mouse, and well-featured keyboard but, again, questionable wireless."

Gyration GC215 GO 2.4

Price £100 **Manufacturer** Gyration **Web** www.gyration.co.uk

We constantly bemoan the designers and manufacturers of PCs and accessories for their lack of imagination, and what happens when one dares to do something different? We get ready to mock. Truth be told, our cynicism-o-meter was going haywire when the Gyration Go 2.4 arrived in the office. The compact keyboard looked innocent enough, but as for the weird, Star Trek-like mouse pointer thingy... 'Works on the desk, in the air, anywhere!' proclaims the packaging. Madness, obviously.

But then the weirdest thing happened. We took it for a spin and discovered that Gyration has actually crafted a gadget that deftly avoids falling between two stools. Motion tracked using a gyroscopic sensor it functions remarkably well as a mid-air controller, each tilt of the unit directing the on-screen cursor with some precision, plus other easily performed manoeuvres activating eight further fully programmable functions. Dangled in

space like this it's better suited for Powerpoint presentations than general point-and-clicking, but it's impressive nonetheless. And with a 2.5GHz wireless signal rather than a 27MHz one, quality remains constant even at distance.

Even stranger, the controller works just dandily as a regular mouse – an issue with Gyration's last attempt. Real thought has gone into a body to fit users with hands of all shapes and sizes. Rather than wrapping around, the hand simply balances over it in a comfortable manner. The weighting feels just right, too, while three programmable buttons sit handily just behind the regular button and mousewheel configuration.

The mouse can be purchased separately, with a full size keyboard, or

with a compact keyboard. We opted for the latter, and – predictable misgivings about the restrictions of a compact design aside, it's well-executed. Less exciting than the mouse, perhaps, but with keys that lend themselves to high-speed, typing, it really is quietly brilliant.

80% **PCF says...** "Shockingly good. Pricey if you're not interested in gyroscopic craziness, though."

top gear PCFormat

SPECIFICATIONS AND PERFORMANCE
From mini to mighty, here's how they measure up

	£25 Genius Twintouch 19eNB	**£40** Belkin Wireless Slim & Mini Mouse	**£37** Belkin Wireless Desktop 280	**£30** Labtec Power Wireless Desk Plus	**£70** Saitek PC Gaming Keyboard & Mouse
	45%	**56**%	**79**%	**74**%	**81**%
MANUFACTURER	Genius	Belkin Wireless	Belkin Wireless	Labtec Power	Saitek PC Gaming
MODEL	Twintouch 19eNB	Slim & Mini Mouse	Desktop 280	Wireless Desk Plus	Keyboard & Mouse
PRICE	£25	£40	£37	£30	£70
WEBSITE	www.geniusnet.com.tw	www.belkin.co.uk	www.belkin.co.uk	www.labtec.com	www.saitek.com/uk
KEYBOARD					
CONNECTION TYPE	USB	USB	USB/PS2	PS2	USB
KEYBOARD FOOTPRINT	390x165mm	420x160mm	505x210mm	460x200mm	490x165mm
KEYBOARD HEIGHT	20mm	20mm	45mm	25mm	25mm
NUMBER OF KEYS	103	103	104	105	105
HOTKEYS	20	13	30	20	4
EXTRAS	Battery charger	N/A	Volume cursor scroll wheel	Rechargable mouse, spill resistant	Command keypad
MOUSE					
MOUSE TYPE	Optical	Mini optical	Optical	Optical	Optical
MOUSE BUTTONS	3	3	8	3	6
MOUSE RESOLUTION	800dpi	800dpii	800dpi	800dpi	1600/800dpi
ADDITIONAL SPECS					
WIRELESS RANGE	2 metres	2 metres	2 metres	2 metres	N/A
WIRELESS TYPE	27MHz RF	27MHz RF	27MHz RF	27MHz	N/A
KEYBOARD WEIGHT	450g	770g	990g	710g	1100g
MOUSE WEIGHT	50g	65g	135g	105g	100g
POWER	4AA batteries	4AAA	4AA	2AA, 2AAA	Via USB connectors
PALM REST	No	No	Yes	No	No

top gear PCFormat

PCF Verdict

Searching for the perfect combination

One of the key challenges when performing a Supertest on mouse/keyboard sets is the subjective nature of the man-machine interface. It's not just that different body shapes, environments and postures, mean every single user has their own unique ergonomic requirements.

No, the real problem is that there's no definitive, right way of designing and building this kind of hardware. There's simply no accounting for taste, which is exactly why there are so many different kinds of keyboard and mouse out there. Hardware manufacturers have been researching and refining their designs over the years, but that one winning blueprint still eludes them. And that in turn means comparing like-for-like only gets us so far. Nevertheless, by putting each through their paces with the same combination of serious and gaming applications over an extended period we've got to know which unique design wrinkles work, which rapidly become a pain, and eventually drawn some interesting conclusions.

Particularly heartening is the discovery that cheap does not have to be synonymous with nasty. Both the Belkin Wireless Desktop 280 and Labtec Power Wireless Desktop Plus are sturdy

£80
Microsoft Wireless Optical Comfort

58%

£80
Logitech Cordless MX3000 Laser

83%

£80
Logitech diNovo Cordless Desktop

87%

top gear PCFormat

£90
Microsoft Wireless Cordless Desktop

68%

£100
Gyration GC215 Go 2.4 Compact

80%

top gear PCFormat

Microsoft Wireless	Logitech Cordless	Logitech diNovo	Microsoft Wireless	Gyration GC215	**MANUFACTURER**
Optical Comfort	MX3000 Laser	Cordless Desktop	Laser 6000	Go 2.4 Compact	**MODEL**
£80	£80	£80	£90	£100	**PRICE**
www.microsoft.com/hardware	www.logitech.co.uk	www.logitech.co.uk	www.microsoft.com/hardware	www.gyration.co.uk	**WEBSITE**
					KEYBOARD
USB/PS2	USB/PS2	USB/PS2	USB/PS2	USB	**CONNECTION TYPE**
485x190mm	485x220mm	390x205mm	485x190mm	315x145mm	**KEYBOARD FOOTPRINT**
30mm	25mm	20mm	30mm	30mm	**KEYBOARD HEIGHT**
103	103	88	193	84	**NUMBER OF KEYS**
5	27	7	21	15	**HOTKEYS**
Zoom slider	Volume wheel and rocker, scroll wheel, zoom rocker	Number/mediapad, Media cursors	Zoom slider	Mid-air mouse operation, Rechargable mouse	**EXTRAS**
					MOUSE
Optical	Laser	Optical	Laser	Optical/gyroscopic	**MOUSE TYPE**
5	8	3	7	6	**MOUSE BUTTONS**
800dpi	2000dpi	800dpi	1000dpi		**MOUSE RESOLUTION**
					ADDITIONAL SPECS
2 metres	2 metres	2 metres	2 metes	9 metres	**WIRELESS RANGE**
27MHz	27MHz	27MHz	27MHz	2.4GHz	**WIRELESS TYPE**
1010g	1130g	870g	1010g	465g	**KEYBOARD WEIGHT**
135g	140g	115g	150g	135g	**MOUSE WEIGHT**
5AA	4AA	2AA, 2AAA	4AA	Rechargeable mouse	**POWER**
Yes	Yes	Yes	Yes	No	**PALM REST**

and well-featured enough to deserve a place on the desktop of all but the most demanding user, yet both are seriously wallet-friendly. More than any of the other units tested, these two demonstrate just how affordable good technology has become over the last year or so.

Further up the scale, the Logitech Cordless Desktop MX3000 Laser demonstrates that there's still a place for unspectacular but competent hardware. The use of laser tracking in this set and the Microsoft Laser Desktop 6000 also doubtless point the way forward for mouse technology. This time next year we fully expect optical mice to be on their way out. Hopefully 2.4GHz/Bluetooth wireless will become the norm too, eliminating the residual signal loss

frustration that still rears its head from time to time.

But for now it's that other Logitech model, the diNovo Cordless, that gets our vote. While it relies on 27MHz wireless, uses standard optical technology, and even fails to add bells and whistles to the rodent design, it's performance is second to none. That plain Jane mouse feels great in the palm and tracks effortlessly, while that keyboard's virtues go way beyond good looks. Buy it to impress your friends, by all means, but it's your fingers that will thank you in the long run. **PCF**

More than just a pretty bit of kit, Logitech's diNovo is a joy for serious typists and gamers alike.

Al Bickham
TECHNICAL EDITOR

A month full of dramatic revelations...

Jaded? Me? Hell yeah. I'd pretty much stopped playing new games, as there are so few that fire me up these days. The only thing I play with any vigour is WoW, and even then, it's hardly a game that pushes my system to a point where the game lives up to its acronym.

Then, along came Oblivion. I'm totally lost in Bethseda's new Elder Scrolls game; it's just so... broad. Everyone in the office has a few special anecdotes about situations only they've experienced. It's amazing. I'm sitting here squinting like I've got sand in my eyes because, for the fourth night running, I've had just five hours' sleep.

It's also an interesting game from a technical point of view, and a great example of the constantly evolving relationship between games and 3D hardware. Seeing the sun rise over a cathedral in full HDR glory actually fills me with a little ecstasy, and reminds me what effect the chips, processors and raw numbers that are our stock-in-trade can have in terms of human experience. Oblivion reminds me why we benchmark. Oblivion is the reason we benchmark.

PCFormat
How to buy kit

ESSENTIAL BUYING ADVICE

This month has seen some serious performance kit hit the market. Not only is new family of NVIDIA graphics cards here, ATI has been busy polishing its CrossFire dual-card setup. You can read our review of the latest ATI Xpress CrossFire-ready motherboard on page 73. With a couple of X1900 cards installed, it forms the heart of pretty much the most powerful games rig that money can buy.

It's also a big month for processors, as we've had our hands on Conroe, the new über-chip from Intel. With games performance that outstrips even the high-end Athlon 64's, it's going to a very desirable piece of componentry.

But as ever, the bargains are to be found much lower down the pecking order. Athlon 64 CPUs are still the best chips when measuring price against performance. Shop around the usual e-tailers, and there are some real bargains to be found! Happy hunting...

For the complete Buyers' Guides, see your cover DVD and www.pcformat.co.uk

Power supply
Every component needs electricity, and the PSU is where it comes from. When shopping for a new one, ensure it has the right connectors and is a reliable brand. Never opt for less than a 350W model.
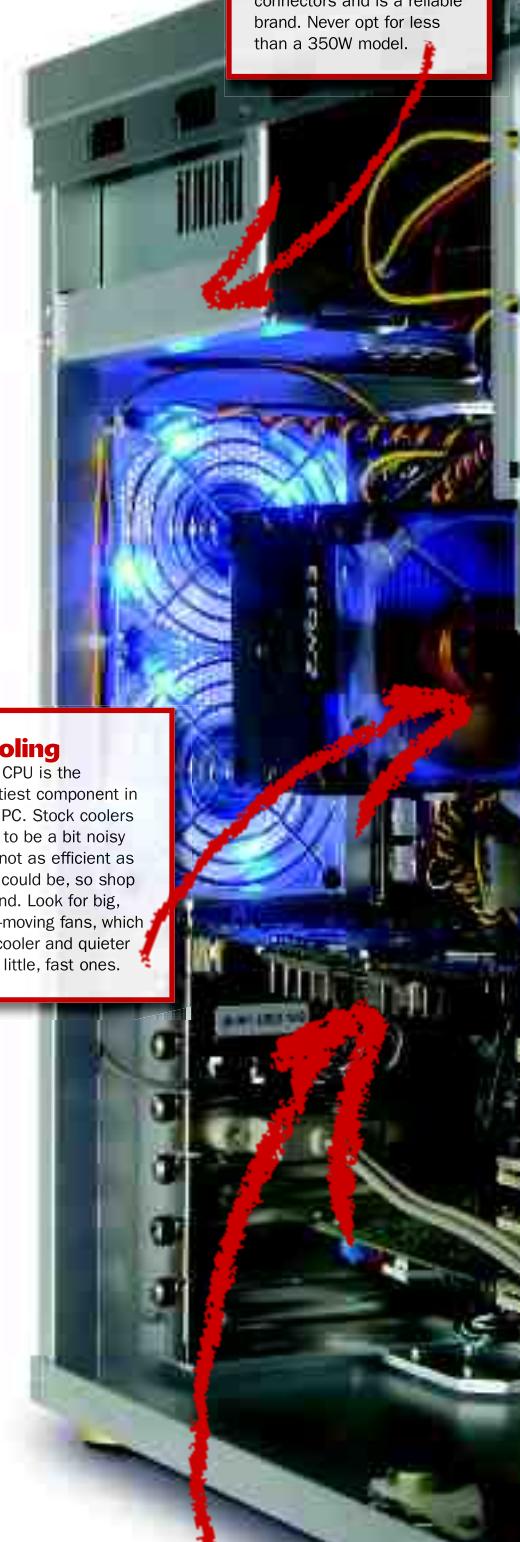
Cooling
Your CPU is the toastiest component in your PC. Stock coolers tend to be a bit noisy and not as efficient as they could be, so shop around. Look for big, slow-moving fans, which are cooler and quieter than little, fast ones.

Graphics card
Does your motherboard support AGP, or the newer PCI Express standard? Ensure you've got the right graphics card for your board's slot, and check overleaf for the best cards in every price category.

Jargon Buster
Making sense of the noise

GPU
CPU? We've all got one of those. But you've also got GPU, or graphics processing units on your 3D card. This is the component that does all the maths for games rendering, and its speed is measured in Megahertz.

CMOS
CMOS, or Complementary Metal Oxide Semiconductor, is where your BIOS settings are stored. It is composed of NVRAM (Non-Volatile RAM), and data integrity is assured with a trickle-charge from the battery on your mobo.

BIOS
BIOS, or Basic In-Out System, is the system which dictates how all your components perform. The BIOS front-end can be accessed by holding down Delete while your PC boots, and is useful for solving hardware issues.

CMOS reset
Somewhere on your motherboard is a CMOS reset switch or jumper – your manual will say where. Use this to revert your BIOS to factory settings in the case of errors.

Optical drive

Selecting an optical drive really is a no-brainer. Thanks to streamlined fabrication techniques, you can now pick up a fast, dual-layer DVD writer, such as the NEC 3540 for about £30. Though pricey, incoming Blu-ray and HD-DVD drives are appealing.

Front panel controllers

There are loads of different front panel control modules available these days. They can do all manner of things, from monitoring onboard voltages to controlling fan speeds inside your case. It's a modder's paradise out there – check out some of the links to the right, and have a good browse of what's on offer.

Hard drive

Buy SATA over IDE? Not necessarily: the price difference is minimal, but so's the performance gap. High-capacity hard drives offer superior performance in both SATA and IDE flavours; denser data-stacking means the reader has less distance to travel, reducing seek-times. For best speeds, look for a buffer of 16MB+.

Chassis

There's a huge variety of chassis designs around, many of them under £50. The more expensive, fully-featured kind tend to come without PSUs however, so always read the description carefully. Aim for a chassis with a 'screwless' design, which features quick-release sides and snap-fit internals. Uncluttered innards means good airflow and cool-running parts, so look out for cases that have decent ventilation and cable management.

Best buy
Point your purse at this…

Galdiator Trident X2   £899
www.gladiatorcomputers.co.uk
Assuming you've already got a monitor, speakers, keyboard and mouse from your old rig, this setup from Gladiator is a great way to supercharge the likes of F.E.A.R., Oblivion and Half-Life 2. The awesome dual-core Athlon 64 X2 4400+, partnered with a gigabyte of DDR400 and the new 7900GT, makes for some very fruity and rather speedy visuals.

Under the hood
CPU AMD Athlon 64 X2 4400+
Memory 1024Mb DDR 400
Graphics Geforce 7900GT
HDD 250GB SATA2
Optical 16X Dual Layer DVD RW
Audio AC97 7.1 surround
Chassis Enermax Black Knight
OS Windows XP Home SP2
Extras 7-in-1 card reader

Recommended
Top PC and component stores

www.overclockers.co.uk
www.aria.co.uk
www.pcnextday.co.uk
www.scan.co.uk
www.komplett.co.uk
gladiatorcomputers.co.uk

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Dungeon Keeper

REDISCOVER It's just like Theme Park – with torture

This is the game in which Bullfrog perfected its art. *Theme Park* and *Theme Hospital* were successful, but were tranquil fare, and lately *The Movies* has returned to that MO. But back in 1997, Bullfrog took this template and added action, OTT violence, dark humour and flatulence, and the result was possibly the finest management game we've ever played. Let's face it, any game whose multiplayer bouts result in the loser being forced to endure a screen from which the winner can inflict various tortures upon him until they get bored is doing something dreadfully, sadistically right.

It's no looker, though. Games Editor James questioned why anyone would want to play this dark, blocky muddle, but its frantic pace and sheer entertainment value bear up well in 2006. It took some blood and tears to make the Windows 95 relic play over LAN, due to it using the obsolete IPX standard (we found a driver at **www. morpheussoftware.net/git**, now on our coverdisc), but the imp genocide made it worthwhile. *Dungeon Keeper*'s available for just £4, and it's something any PC gamer should revisit.


There's nothing like a bit of wanton victimisation to break up the resource-gathering.

```
FALSE PROPHETS
"CASH COULD BECOME HISTORY IF TWO MAJOR BANKS
AND BT GET THEIR WAY. THE MONDEX CARD COULD
CHANGE THE WAY WE TRANSFER MONEY FOR GOOD." A
NEW CARD DESIGNED TO REPLACE NOTES AND COINS IN
PCF43, JUNE 1995. IT SANK WITHOUT TRACE.
```

Jill of the Jungle

Years before Lara leapt over her first spike pit, Jill was strutting her stuff in her own 2D platformer. The product of Epic Mega Games, which would later go on to create Unreal Tournament, this classic has now been converted to Windows XP. The current build only contains one level, but the addition of a tile based map editor means that should you can make your own fiendish challenges for the PCs original blonde bombshell to leap over athletically.

Get more info at:
www.eiksoft.com

Play on your PDA

REINVENT Banish the horror of playing games on a fiddly PDA pad

With PDAs getting more powerful by the day, and the release of a multitude of emulators for handhelds (including one that runs PlayStation games), using the thumb pads which are traditionally placed at the bottom of devices just isn't cutting it any more. The Dell Axim X50v, with its integrated graphics chip, seems the sorriest waste of portable power; while wireless controllers are available, because of the wildly differing shapes and sizes, there isn't one that snugly fits around that particular PDA's chassis. Luckily the Axim has a dedicated community and, on a thread at Aximsite.com (**www.aximsite.com/boards/showthread.php?t=114087**), a user who goes by the name of Jacob Hildebrandt took matters into his own hands.

Hacking a Bluetooth gamepad to bits, he has created a hybrid bluetooth PlayStation controller that is spring-loaded to grip the sides of the PDA. While it won't rival a PSP in the style stakes, the hack at least allows you to play *Final Fantasy VII* on the train without your thumb seizing up. The project is obviously designed primarily for the Axim, but the concept could easily be adapted for almost any PDA.

Until it has dual-shock sticks, we're not interested in this pad.

MAY 1995

GAME
BIOFORGE

SCORE
PCF 44, 89%

REMEMBER…

Alone in the Dark can keep its haunted house. Bioforge went for splatter value with its tale of grotesque sci-fi surgery…

One of the few true body horror games ever made, and arguably the most notable, *Bioforge* saw your character Lex awake in a mysterious outpost run by Richard O'Brien lookalike Dr Mastaba. The good doctor clearly threw out his photocopy of the Hippocratic oath years ago, though, as he's twisted the flesh of his prisoners to create bizarre cybernetic freaks. Your job was to guide Lex through various puzzles and some rather clunky combat so that he might escape from the outpost.

In 1995, *PCF* was amazed by the combination of lavishly rendered cutscenes, artfully designed backgrounds and fully textured 3D models. This was as close to an interactive movie as any game had got, not least because the storyline and well written journals dotted around the game gave the entire experience a real sense of atmosphere and place.

Providing you could stomach the concept of beating an angry victim of cybernetic experimentation to death with the soggy end of his own severed arm (and later using it to jemmy open a door), then Bioforge was an utterly engaging and thrilling adventure.

ALSO OUT THEN...

DISCWORLD

Boasting a cast that included Eric Idle, Tony Robinson and Jon Pertwee, this point-and-clicker plunged you into the bizarre but brilliant world of Terry Pratchett's books. The acting was impeccable, but the game wasn't up to *Monkey Island*'s standard, with illogical puzzle-solving aplenty.

SCORE
PCF 80%

BUREAU 13

A turgid adventure yarn that suffered from terrible 3D graphics, *Bureau 13* followed a group of paranormal secret agents who travelled around, bizarrely, in a mobile home. Even the fact that one of the team was a scantily clad woman in a clomping robot suit couldn't save this one.

SCORE
PCF 31%

FLIGHT OF THE AMAZON QUEEN

Yet another point-and-click game (did we play anything else back then?), *Flight* saw you take control of Joe King in a Forties tale of pilots, jungles and cross-dressing. A witty storyline and some excellent animation helped this stand out.

SCORE
PCF 86%

LookingBack

THE CREATOR'S CRITIQUE

Watch your grip on the city increase as the game progresses.

The sheer scale of the playing areas still impresses.

Monopoly Tycoon

Kieron Gillen passes Go, collects £200, and traces the rise of Deep Red's wheeler-dealing classic

Monopoly licences don't immediately lend themselves to out-there game design. That said, this wasn't just a well-conceived reinvention, but also a brilliant game of financial warfare from Deep Red, which has gone on to explore similar entrepreneurial terrain ever since. *PCF* chatted to Managing Director and Deep Red founder Clive Robert about how the game came together.

"*Monopoly Tycoon* was, for us, a very cool opportunity," he explains, "My background is in Hasbro and Parker and the boardgame industry. It meant that we could create a game which bridged the gap between board and computer games. We didn't want to do what everyone else had done, which was a version of *Monopoly* where you put the game board vertically and put it on the screen and play the exact same experience as the boardgame… except the boardgame was far more fun. We wanted to use the key elements of *Monopoly* and actually create a game that was specific for the PC. The game was different to *Monopoly*, but you always felt like you were playing *Monopoly*."

SETTING UP HOME

While the game's structure was one issue, this effect was mainly achieved by the game's aesthetics. By looking like *Monopoly* and using its signifiers, Deep Red managed to maintain its atmosphere. "Through taking the key elements – like the colours," Clive elaborates, "If you play *Monopoly Tycoon*, you'll see all those blocks are in those familiar colours. So Pall Mall is always purple, Park Lane is always dark blue, Bond Street was always green… and really posh, and Whitechapel, being brown, was not posh. Taking those cues from the original game really worked."

The team soon encountered bigger design issues, too. "The problem was divorcing ourselves from *Monopoly*, and realising that we were making a social sim and world-building game… we were not just building *Monopoly*," Clive notes. "We were trying to differentiate from *Monopoly*, while retaining the feel of the boardgame. We could have developed a *Monopoly* boardgame or a *Tycoon* game, but what we were desperately trying to do was to make something in the middle. The teething problems arose when we tried to build something that was neither one thing nor the other."

"I don't think we got it entirely right either," Clive continues, "we made a game that was far more hardcore than originally planned, and wasn't the easiest game to play in terms of the learning curve. It's pretty steep, and you have to be a pretty damn good gamer to get anywhere in *Monopoly*, as successful as it was." Even come release, there were some judgements that they decided they were in error, swiftly deciding to release a patch to cure them. "There were two big issues with the originally shipping game," Clive explains, "The first one was that we insisted the player play through the entire game before gaining access to the sandbox mode, where everything – all the blocks, the development tree and so on – were available. Initially we kind of saw that as cheating, so we didn't include it from the off. Also, we'd made a game that was level based… and once you'd completed the level, the scenario ended and moved onto the next one." Sounds sensible enough. Thousands disagreed. They didn't come to *Monopoly Tycoon* to play levels.

"We got huge stick, as people said 'I've completed the winning criteria… but I want to continue fiddling. I want to play in my little world. I don't care about any kind of winning condition'." Clive recalls ruefully: "we issued a patch really quickly as there were a lot of complaints, to allow you to play on and unlocked sandbox mode immediately." This is something the team learned

The CPU players all had their own personalities.

You'll find that the lights are all the brighter on Broadway if you happen to own lots of real estate there.

Developer Diary

The Eastern European games industry is in a precarious position, says **Radek Volf**

One of the biggest challenges currently facing small independent games studios is the inexorably increasing cost of developing new games. This problem is even more pronounced in the case of small Central and Eastern European developers, who simply lack the financial means available to those in Western Europe or the USA.

In order to remain at least marginally competitive in an extremely fierce marketplace, we are being forced to cut expenses at every turn. The situation is still worse with the arrival of the next-gen consoles. Making games for these upcoming technologies requires an exorbitantly high level of investment with the resulting burden of potentially crippling financial liabilities.

And when we take into account the unpleasant fact that unless it is a sequel or a well-known existing franchise, it is nowadays very difficult to successfully market a new game, it is no wonder that small developers are now squeezed between a rock and a hard place.

The bleak situation for small developers is clearly reflected in negotiations with the distributors who either offer them less favourable conditions or reject their products outright.

Thus a small independent studio, plagued by chronic under funding, often has to accept very unfavourable terms just to get their game in the shops. And still their problems don't end here.

What is the most troubling aspect of all this is the fact that developers are frequently subjected to unceasing pressure from publishers, sometimes to the detriment of their productivity and creativity. The haunting spectre of commercial failure is pushing them into rash, knee-jerk reactions to these pressures, like cutting all possible corners to make a deadline, and gutting the game in the process, or changing the game's concept to indulge a distributor's wishes, often unreasonable, to such a degree that the final product doesn't bear much resemblance to the original, and usually far better, concept.

Radek is Project Leader at Black Element Software.

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from, and now all their games are built with this in mind. For example, while the recent *Tycoon City: New York* unlocks new districts as you play, your previous areas remain accessible, so you can interact with and admire them as you go.

MARKET FORCES

As a game, Clive's particularly pleased that it found its audience with just under two-million units sold. However, this wasn't in one week. "It took years to do the two million units," Clive explains, "When you compare that to something like the games that are selling today, the big über-games that launch, will sell two million games in six months… then sink without trace. The thing about *Monopoly Tycoon* is that I *still* receive royalty cheques. It's still selling. It may be £9.99 – maybe even £4.99 now – but it's still selling and people still want to buy it. It's received that sort of classic status. It's just brilliant for us."

This makes management games different from many games in the marketplace. "First-person shooters don't sell well for years," argues Clive, "They sell really well for the first couple of months, and disappear without a trace. But world-builders, God games, *Tycoon* games… they sell forever." An old observation in games magazine lore is that an FPS will sell more copies of a magazine if you put it on the cover than a strategy game, even if the strategy game ends up selling over twice as many copies. Different demographics are reached by each genre, which in turn react in different ways.

"For me, it comes back to something more simplistic," Clive says, "Strategy games and

Tycoon games just aren't sexy. Shooting games are sexy. Every developer wants to work on them, every programmer wants to code for them and every artist wants to be doing huge orc-type characters with armour… while world-building games are based around designing ground contours or apartment blocks. They just aren't sexy. They don't sell magazines and are never going to set the world on fire… but they do chug on forever and ever. Which is why publishers love them so much, and why pretty much every publisher has a back catalogue line-up featuring them as these games can be relied upon to steadily generate income. If, as a developer you're prepared to be a 'chugging away in the background' type of bloke, then there's a great life to be had."

While he argues the RTS is struggling, the *Tycoon* series is getting increasingly large crossover appeal. "Internally our mindset has gone from saying 'We build *Tycoon* games' to 'We build social simulations'. I think that's what we do," Clive claims. "We try to simulate social environments, which works really well for us and plays into the dynamics of what people want these days. Even though ostensibly it's the same thing, we change the wrapper. As opposed to players getting feedback on a graph, they get feedback from, say, game characters telling them how much they enjoyed the coffee they bought from the player's café." While *Monopoly Tycoon*'s decidedly vicious take on the normally placid social sim genre may not dominate today's gaming market, compelling in-game logic and its large fanbase will preserve its legacy. **PCF**

> *"World-builders, God games and Tycoon games will sell forever…"*

Tycoon tycoon
Tips from masters of the social sim genre

Has Clive got any advice for any coders thinking of making entrepreneurial games? "Make your game all about social simulations. The best sims these days are all about the nurturing and love angle that's built into these games. They aren't concerned about a bakery or an apartment block or a café… but they are passionate about whether it's liked by its inhabitants. They need to be a voyeuristic experience, about doing stuff and then watching the results of your intervention. Being a voyeur is where it's at." What do we learn from this? Player feedback counts. Also, anyone who lives near Deep Red's HQ, be sure to close your window while getting changed.

Contender for worst job in the world – guy who has to poke his head out of a tank.

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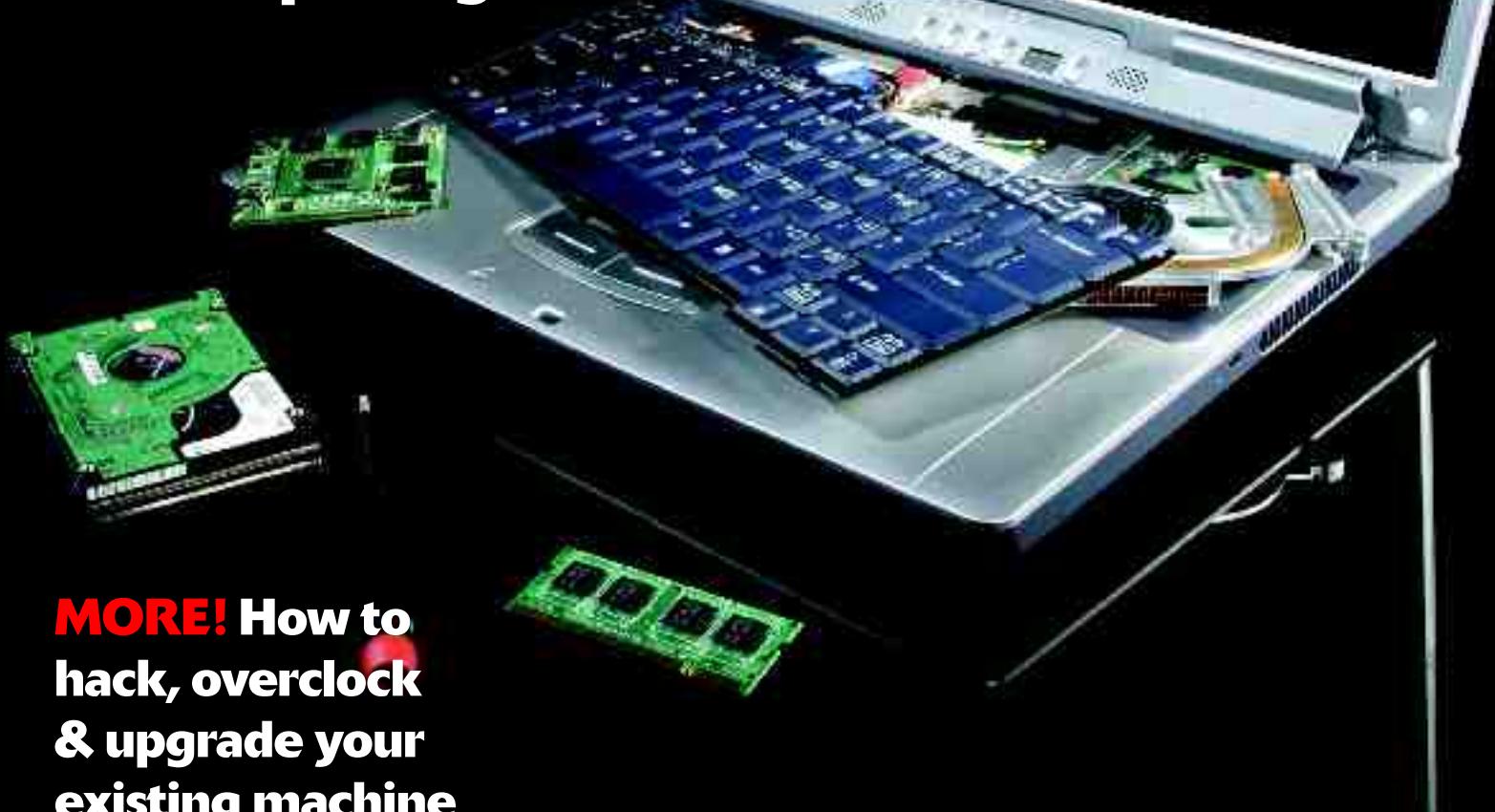
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ON SALE 18-05-2006

Over to you... HAVE YOUR SAY

Portrait *of a* **blogger**

He blogs, she blogs, they all blog together. To be specific, 2% of online Europeans have started a blog since 2006 began, and even PCF is getting in on the action – see **blog.pcformat.co.uk.** Meantime, here's the who, what, where and why...

May

Monday

3 hours of every new blogger's day is spent online. Coupled with their extensive gaming and movie-watching habits (two hours more apiece than the average online consumer), that adds up to **39** hours a week in front of a screen. Which is more than many folk spend asleep...

Remove your Hat of Stereotyping **+3** – the majority of new bloggers in Europe aren't big fat lonely men writing about boobies, but rather **52%** are female. At **45%**, a majority are also students.

Tuesday

Perhaps foolishly, **72%** believe that people who comment online know what they're talking about. Men, needless to say, are far more likely to call poppycock on someone else's post than women are – **14%** completely disregard others' comments.

Wednesday

We've discovered that **1/3** of UK internet users who use the web at least once a week have never heard of blogs. That said, 25% of those surveyed do read other folks' online musings.

Indeed, most regular online types are readers, not writers, with **2/5** of 'em enjoying reading posts of some form (be it in a blog, a forum or a comments thread) from other users.

In the UK, **7%** of all frequent internet users have created a blog, and a 16-24 year-old is three times as likely to have done so than someone aged 25-34.

39% of new bloggers are from France, the largest contributor to the blogosphere after the US.

NEXT MONTH
PCFormat issue 188 is on sale 18th May